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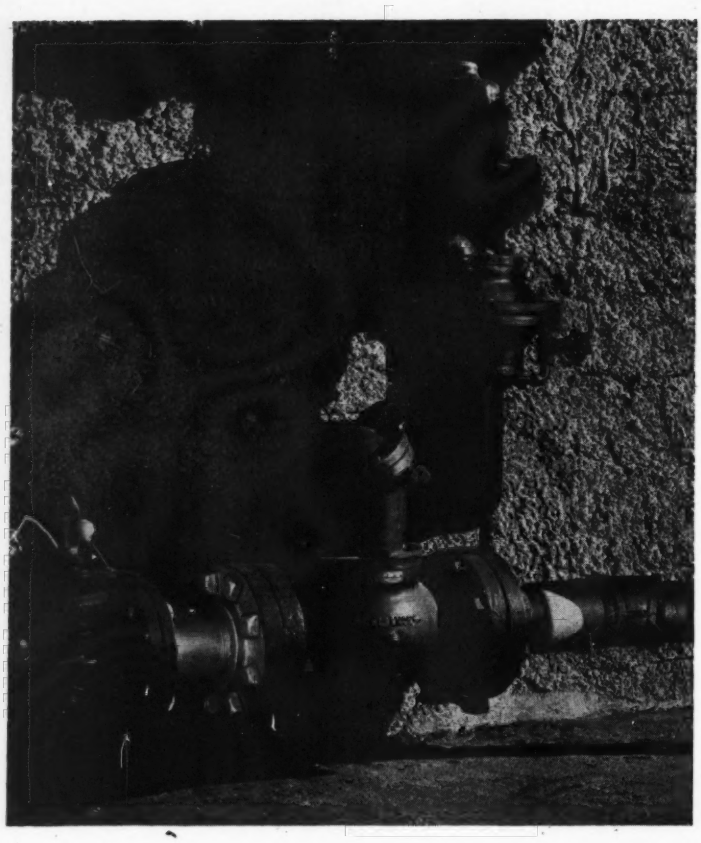

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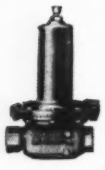

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GAS

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Nineteenth Year of Publication

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THERMALLY THINKING

By ELLIOTT TAYLOR, Washington Editor

Inflation Preparation

A LOT clearer thinking on the subject of war-time and post-war inflation might result if industry would devote less time to futile and fearsome predictions on the results of inflation, *if* it comes, and lay its plans for what it is going to do about inflation *when* it comes. Since inflation is already here, and is already being recognized and profited from by a large segment of our population outside the ranks of the OPA, the making of such a statement is hardly calculated to elevate an editorial writer to the ranks of major prophecy.

Government agencies have been responsible in the main for the spreading of a good bit of panic copy in their campaign to avoid inflation spelled with a capital I. And the same New Deal that spent the first decade of its power laboring assiduously to bring about the conditions of inflation is now attempting to degrade its one-time noble objective to about the status of an almost unmentionable social disease. OWI propaganda stories, geared to what the gifted journalists in that organization consider the "man in the street" reader mentality, harp constantly on the theme that if inflation comes, everybody loses.

Now, the simple fact of the matter is that when inflation comes, as it is already well on the way, it is a long time before anybody loses, and even in its extreme manifestations it is the creditor class that stands to suffer most, while the debtors of the nation, whether they be corporations or individuals, stand to gain by what amounts to a spontaneous and automatic devaluation of the dollars that they owe. Unfortunately for the learned economists and for the financial institutions, the man in the street thinks of inflation in terms of good times, high wages and easy money. His position is, perhaps, understandable when we consider that during the safe and sound days of deflation, following the collapse of 1929, he found himself without good times, without any wages to speak of, and with no money to be had from any source. It would be specious to argue with such a man that his paid-up life insurance policy was safe, and that his estate would profit by the added purchasing power of the dollars that he would leave behind. Dough in the envelope on Saturday night is a potent argument, and against it hypothetical considerations of the effect of the national debt on unborn generations can interpose only a feeble and unheeded voice.

Farmers, who have been regarded traditionally as the conservative backlog of any national economy, cannot be counted on to enroll themselves in a militant fight against the coming devaluation of the dollar any more than can labor. As a simple example, let us consider the case of a corn farmer with a mortgage of $1000 on 100 acres of land. He is just an average farmer, and his land will produce, let us say, 50 bushels of corn to the acre. With corn at a dollar a bushel it will take the yield from 20 acres, or 1000 bushels, to pay off his indebtedness. If inflation lowers the value of the dollar to the place where it will take two dollars instead of one to buy a bushel of his corn, then the practical amount of his indebtedness is only the yield of 10 acres or 500 bushels. A 25-cent dollar would enable him to get square with the world by selling the crop from only five acres, 250 bushels of corn at $4 a bushel. And as far as nature is concerned there is no known relationship between the current value of the circulating medium and the productivity of the land. That this simple economic process is even now at work cannot be denied, since the nation's aggregate farm debt is being paid off at the most rapid rate in history, and lending institutions are concerned over the fact that they cannot find takers for farm mortgage money at low rates of interest.

We are not here presenting a brief for inflation, of either the wild or controlled variety, any more than we would attempt to set down arguments either for or against tomorrow evening's sunset. But we believe it is wise for business management to take into careful consideration the fact that arguments against the preliminary steps that lead toward that end sound to a great mass of Americans like nothing more altruistic than excuses for denying higher wages to all who work for a living, or higher prices to all who produce the wanted goods and services that money is supposedly created to buy.

Nor can we look for government itself to continue indefinitely to interpose its great and formidable bulk between the pressure for high wages and prices on the one hand and the competition for a limited supply of consumer goods on the other. For the same government that today profits by keeping prices down will upon the conclusion of the war find in inflation the tempting solution to the greatest fiscal impass that any nation in recorded history has had to cope with.

Government is now the number one prime customer of all American industry and of all American farmers. And war bond and stamp sales, notwithstanding, it is right now financing the war by creating the dollars that are necessary to all of the many and varied activities that are essential to the war's successful prosecution. The few billions immobilized by the sale of government securities to private investors who buy out of current earnings or out of savings are not a drop in the bucket against the overwhelming flood of hundreds of billions that are subscribed by banks and financial institutions and all of which add to the total amount of money now in circulation. It is to government's interest to maintain as high a value as possible for the dollars that it is now spending, so that it may emerge from the emergency spending cycle with as low a debt as is consistent with the demands of war, and of the practical politics that must be played even while the war is in progress.

Upon the termination of hostilities, however, the position will be reversed, and government will drop from its position of the number one buyer of all the nation's output, to that of number one debtor—in fact, to that of number one debtor of all time. Does any realist believe that a national debt that will exceed 300 billions of dollars will be paid off—as a matter of fact, can be paid off—in terms of any value of dol-

lar that this country has ever known? We have seen no indication that the present political party appreciates the magnitude of 300 billions of anything, and certainly there has been forthcoming no explanation of how a debt in this amount could be serviced and retired except by some form of inflation.

Assuming that inflation or monetary adjustment or dollar devaluation is a practical certainty, a primary concern of any industry in considering and planning for its post-war position must be to make any provisions that it can make during the comparatively normal years of war to meet the rapid and cataclysmic changes that will follow hard on the heels of peace.

Many lines of endeavor, operating under what is called our free economy, are normally in a good position for a catch-as-catch-can encounter with almost any economic changes that may take place. If costs go up, their prices go up accordingly, and if labor demands higher wages, the finished products of that labor sell for higher prices, with the usual net profit added. Their strength lies in the fluidity of their operations, and in the flexibility of their pricing practices.

Regulated gas and other utilities, however, are not in such a favorable position. Due to the fact that any upward revision in rates must always be attended by the necessarily slow mechanism of presenting and obtaining approval of new schedules, they must be able to weather an unfavorable economic position out of reserve or by borrowing for months and at times even for years, before the equity of their case is finally passed on by state regulatory authorities. This, plus the activity of the new crop of federal interventionists, creates a lag that might conceivably put an operating company in a precarious position to even render service before relief was granted under existing laws.

To some degree, at least, the meeting of this post-war problem could be approached by allowing the utilities to build up a backlog of reserves during the war, earmarked for post-war rehabilitation, as we have suggested in previous comments on this problem. And we see some evidence that state commissions and the ICC are disposed to look favorably on the idea of allowing utilities to set aside funds to meet the accelerated maintenance and other costs incident to war and post-war inflation. Such decisions, however, have always been either in direct or implied defiance of the adamant and arbitrary attitude of the OPA, taking its cue from the Economic Stabilization Act of last October, and further bolstered by brisk and truculent adherence to its interpretation of the President's hold-the-line order of April 6.

That the state commissions are not all disposed to abandon their legal and traditional function of setting up equitable rates for utilities even under the pressure of federal insistence on an arbitrary and one-sided adherence to the hold-the-line vagary is evidenced by the recent action of the Pennsylvania Utility Commission and the Wisconsin Public Service Commission, among others.

In Pennsylvania the commission has relaxed its rule of permitting only a 6% return on investment, for the duration of the war. The commission, in explanation of its action, recalls that many utilities are now taking in much higher gross revenues without being able to expend their normal outlay for replacements, maintenance and repairs. This, in the opinion of the chairman, will result in "enormous expenses" for rehabilitation immediately after the war.

In Wisconsin the commission recently dismissed the petition of OPA filed against the Milwaukee Gas Light Co., which was seeking an increase in space heating rates, in accordance with its schedules filed with the commission.

In Illinois the State Commerce Commission also set the OPA back on its heels by making permanent a provisional order increasing the surface line street car fares in the city of Chicago. The commission ruled that the rate increase was necessary to keep the surface lines operating without a loss, despite OPA's contention that an increase of one cent on the car fare would be inflationary.

If these straws in the wind can be taken as an indication of a realistic understanding of the utilities' problems by these and other state regulatory bodies, we believe that the hush-hush policy regarding rate increases as far as this industry is concerned should be abandoned. In its stead, we are convinced the utilities should now make an effort to establish the principle that a certain portion of net income might legally be set aside and held as tax-exempt against the day when manpower and material shortages will have been relieved enough to permit of the resumption of sound maintenance and repair practices. Such a fund, if accumulated now and held against that day, might go far toward enabling the gas companies to meet the impact of post-war conditions and to hold the line themselves until their rates can catch up with the high wages and higher prices that war and post-war inflation will have created.

The only alternatives are higher taxes reaching into the excess profits brackets on one hand, or orders for rate reductions based on the fallacious appearance of high earnings which ignore normal maintenance expense on the other.

Nor do we believe that the issue should be confused by any deference to OPA or other bureaucratic economics that in some inexplicable way have managed to masquerade as a higher order of patriotism. America needs the assurance of the uninterrupted delivery of its utility services after the war is over much more than it needs to save a few cents a month on its war-time gas bills.

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Briefly Noted

The recent appointment of Paul R. Taylor as director of the natural gas division of the Office of War Utilities, WPB, is resulting in a streamlining of the division that was not possible during the time when it existed in name, but without a directive head to coordinate its activities. Two important steps taken by the new director are the formation of the Natural Gas Advisory Committee, with Edward Falck as government presiding officer, and the dividing of the country into five natural gas areas, with a government engineer located in Washington in charge of each area. Under the new system, any projects, problems or proposals for a given area will be referred to one engineer whose entire attention will be devoted to that area.

• •

Paul M. Raigorodsky, assistant director of the Natural Gas and Natural Gasoline Division of PAW, under E. Holley Poe, retired from government service on July 1 to take up his duties as vice president and general manager of Petroleum Engineering, Inc., of Tulsa and Houston, and of the Glenrose Gasoline Co. and affiliated companies. Mr. Raigorodsky has been in Washington since June, 1942, when he organized the then Natural Gas and Natural Gasoline Section of OPC.

Paper Shortage?

Two hundred and eight million pounds of paper for the federal government in 1941; 226 million in 1942, and the 1943 contract calls for 350 million pounds, with one-third for use the first three weeks of this year.—Senate Printing Committee.

BUTADIENE PRODUCTION

Gets Underway at the Plant of the Southern California Gas Company

By H. L. MASSER

Vice President and Executive Engineer, Southern California Gas Company, Los Angeles

THE butadiene plant constructed by the Southern California Gas Co. is a thermal cracking unit, using remodeled oil gas generators and accessory equipment, which largely fitted into the general arrangement required for cracking naphtha feed stock into gas containing light oils and butadiene vapors, with a yield of the latter of about 3.5% by weight of feed stock charged. The plant will charge about 21,000 bbl. per day gross of naphtha and produce about 35,000 short tons per year of butadiene. Of this amount of feed stock, approximately 2000 bbl. per day will be recycled C_5+ "gasoline" from the butadiene absorption plant.

Essentially the construction of the project may be divided into two parts: (a) the remodeling of Southern California Gas Co.'s gas generating plant with the addition of equipment as necessary for the production of gas containing butadiene and recovery of light oils; and (b) the construction of an absorption unit to treat compressed gas from the manufacturing plant and extract crude butadiene-butylene mixture. The remodeling of the gas works is being handled by Southern California Gas Co. and Parkhill-Wade, while the construction of the absorption plant is being done in its entirety by C. F. Braun Co.

Plant Equipment

The gas works, comprising a complete generating unit with all accessory equipment, has a normal capacity of 48,000 Mcf. per day of 1000-Btu. gas made from Diesel oil. When operating with the alterations as now being made, and using naphtha feed stock in the amount of 21,000 bbl. per day, there will be a gross production of about 58,000 Mcf. per day of gas from the generators. After removal of tar and oils, there will be a residual volume of gas estimated at 53,000 Mcf. per day which will be delivered to the absorption plant for the extraction of the C_4 fractions, and C_5+ "gasoline."

This company's plant consists of 10 gas generators, 27 ft. diameter by 42 ft. high, with wash-box seals, water and oil scrubbing towers, large circulating pumps for condensing and scrubbing water, fuel and fire pumps. There is also an existing boiler plant having a total capacity of about 300,000 lb. of steam per hour at 150 lb. pressure. Existing tankage for oil amounts in total to about 220,000 barrels. The gas produced by the 10 generators is delivered from the scrubbers to a 1000-Mcf. relief holder, thence by centrifugal exhausters through oxide purifier boxes to remove hydrogen sulfide, and delivered into a 6000-Mcf. storage holder. From the storage holder gas will be drawn by two or three 1000-Mcf. per hour steam-driven compressor units and pumped at 60 lb. gage into a 50 ft. diameter Hortonsphere which is being erected at the absorption plant.

Existing equipment at the gas works being used in this project has a value of approximately $6,250,000.

To provide for butadiene operations there is being added to the plant:

Three 70,000 lb. per hour boilers.

One 360,000 lb. per hour superheater to raise the temperature of steam entering the cracking chambers of the gas generators to 700° F.

Two 11,000 gpm. circulating water pumps.

Cooling towers.

Miscellaneous large pumping units for fuel, feed stock, etc.

New checker-bricking of gas generators to provide for downward heating.

Ten 48-in. brick-lined hot valves.

Naphtha feed stock heaters using waste flue gas from generators and concrete chimneys for draft.

On tour of inspection at the Southern California Gas Co. butadiene plant: H. L. Masser, executive vice president, Southern California Gas Co.; Col. Dewey Bradley, deputy rubber director; J. Oostermeyer, president, Shell Chemical Co.; and W. M. Jeffers, rubber director.

Synthetic Rubber Manufacture in California

Production of government specification "Buna S" synthetic rubber at the new $15,000,000 polymerization plant in the Los Angeles Harbor area is now under way, according to an announcement by Frank P. Doherty, president of Los Angeles County Chamber of Commerce.

This new synthetic rubber project is one of the largest units of the national synthetic rubber program being pushed to completion by the rubber director. It was financed by the Reconstruction Finance Corp. through its Defense Plant Corp., by which agency it was supervised and is owned. The production project is being operated for the Rubber Reserve Co., a division of the RFC, jointly by the Goodyear Tire & Rubber Co. and the United States Rubber Co. through a newly formed corporation to be known as the California Synthetic Rubber Corp. This pooling of the resources and personnel of two strong competitors in furthering the national war effort is unique in the annals of the American rubber industry.

This production operation integrates the polymerization plant with plants in the Los Angeles area producing the principal raw materials for synthetic rubber—butadiene and styrene. The first of three identical units of the polymerization plant is now in operation.

The butadiene and styrene plants are also owned by the government. The main plant for production of finished butadiene is operated by the Shell Chemical Co. The Southern California Gas Co. will furnish a considerable portion of the raw stocks which Shell will process to butadiene. A plant recently converted to the purpose by the Standard Oil Co. of California will also supply a large amount of the finished butadiene to the polymerization plant. The styrene plant is operated by the Dow Chemical Co. That plant will produce all the styrene required for operation of the polymerization plant.

Harry Masser, a native Californian, is a graduate of the University of California (1914). In 1915 he first became affiliated with Southern California Gas Co. as draftsman and engineer. His gas utility career was interrupted in 1918 when he became an ensign in the Navy, assigned to gunnery and ordnance work in New York. Following the war he served the California State Railroad Commission as gas engineer, and in 1924 took a similar position with the Los Angeles Gas & Electric Corp., of which he subsequently became vice president and executive engineer, vice president and assistant general manager. When Los Angeles Gas & Electric was merged with Southern California Gas Co., Mr. Masser became vice president of that company. He is now executive vice president of the reorganized Southern California Gas Co.

New tar-light oil separator.

Oil stripper unit.

Tar-light oil dehydrator to handle about 8000 bbl. per day.

Two 37,500-bbl. steel tanks for temporary storage of recovered light oils.

Extensive additions to plant piping and electric systems.

The absorption plant which was designed and constructed by C. F. Braun Co. is located on lands purchased by Defense Plant Corp. This absorption plant draws gas at 60 lb. initial pressure from the Hortonsphere to Cooper-Bessemer gas engine direct driven angle type compressors of 4800 hp. total capacity and discharging at 200 lb. pressure. From these compressors the gas flows through the several scrubbing towers and fractionating columns, etc.

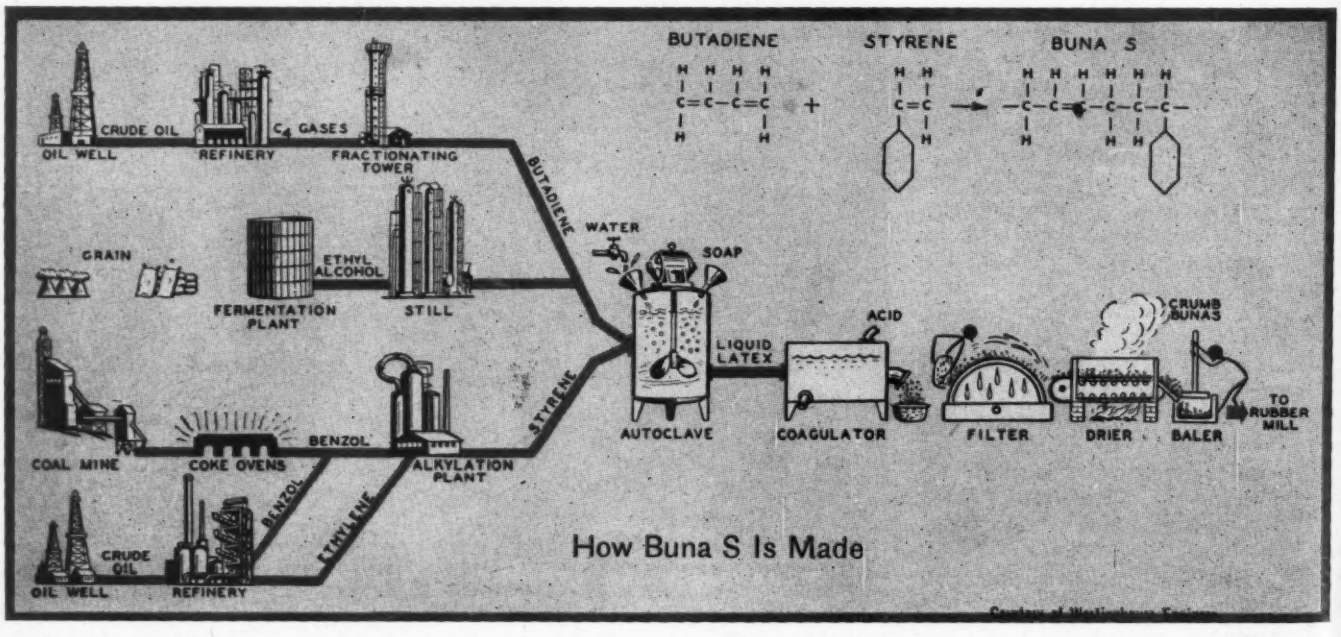
The estimated cost of the new equipment for the project, including the absorption plant, is $5,750,000.

Technical Data

Technical details are briefly as follows:

General requirements for a high yield of butadiene from the thermal cracking of hydrocarbon oils involves: heating the oil to the cracking temperature as rapidly and for as short a duration as possible, in an atmosphere of inert gas which serves as both a diluent to accomplish rapid movement through the cracking chamber and a protective medium to retard decomposition or polymerization of the butadiene after formation; and cooling the gas as soon as it leaves the cracking chamber to a temperature at which no further reaction can take place. Maximum yield of butadiene is obtained from the proper combination of pressure, time and temperature. If two of the cracking conditions are fixed by physical details of the equipment, for instance pressure and time, a corresponding optimum temperature will be found at which the volume of gas produced, and volume percentage of butadiene in the gas, will result in the maximum quantity of butadiene in terms of oil charging stock.

In Southern California Gas Co.'s operations, naphtha of approximately 200° to 500° F. boiling range will be cracked in firebrick checkerwork in an atmosphere of steam, the ratio of oil to steam being 1:1 by weight, or approximately 85 mol per cent steam. The cracking conditions will be approximately 2 psig. pressure, one second contact or residence time, and 1350° F. The steam performs the functions of the inert gas as already discussed. Immediately after leaving the generator



How Buna S Is Made

Courtesy of Westinghouse Engineer

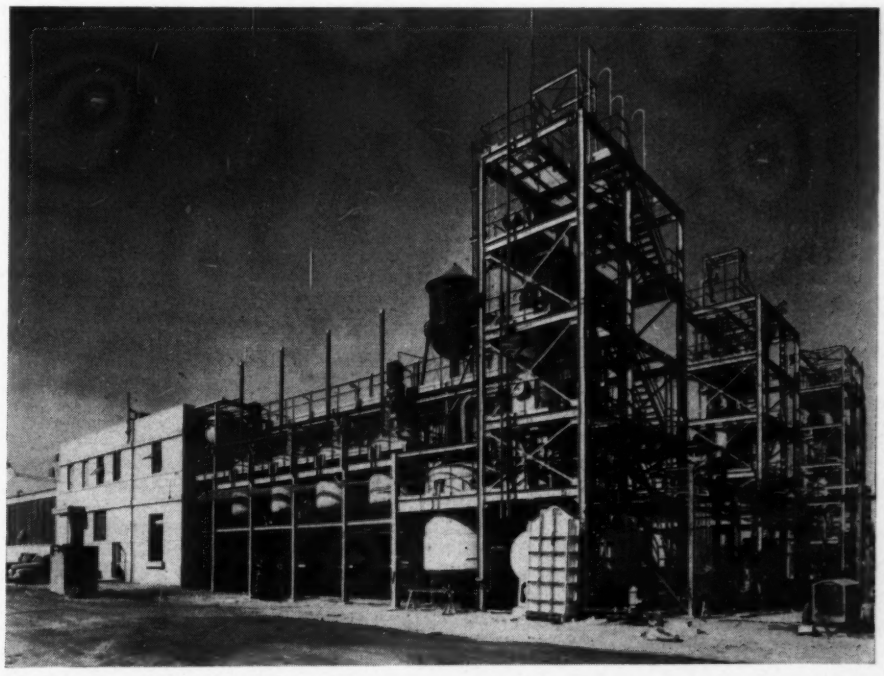
TABLE 1. OPERATING MATERIAL QUANTITIES

Naphtha Feed Stock	*M cf. Per Day*	*Pounds Per Day*	*Gallons Per Day*	*Barrels Per Day*	*Tons Per Day*	*Tons Per Year at 365 Days*
Total gross	.....	5,733,000	882,000	21,000	2,867	1,003,275
Fuel Requirements						
Heat generators	17,700 or	.....	.....	3,100	.....	.....
Boilers (total capacity 500,000 lb. steam per hour)	14,553 or	.....	.....	2,555	.....	.....
Superheater (360,000 lb. per hour at 700° F.)	1,790 or	.....	.....	314	.....	.....
Two 60-lb. compressors (steam fuel)	2,722 or	.....	.....	478	.....	.....
Absorption plant steam requirements	2,542 or	.....	.....	447	.....	.....
TOTAL FUEL REQUIRED	39,307*	.....	.....	6,894†	.....	.....
Gas Produced						
Gross, at wash box outlet at 184° F.	57,900	.....	.....	.....	.....	.....
Gross, at water scrubber outlet at 90° F.	53,600	.....	.....	.....	.....	.....
Gross, at oil scrubber outlet at 90° F.	53,300	.....	.....	.....	.....	.....
At absorption plant discharge (C_3 and lighter, 1100+ Btu.)	48,300	.....	.....	.....	.....	.....
Liquid Products from Gas Generating Plant						
Wet tar and oil emulsion from tar sump	.....	.....	168,000	4,000	.....	.....
Wet oil and emulsion from water scrubber	.....	.....	95,802	2,281	.....	.....
Oil from scrubber oil stripper	.....	.....	90,720	2,160	.....	.....
TOTAL OIL AND EMULSION	.....	.....	354,522	8,441	.....	.....
Final products—light oils to refinery	.....	.....	189,000	4,500	.....	.....
—tar and heavy oil for fuel	.....	.....	102,522	2,441	.....	.....
Liquid Products from Absorption Plant						
C_4 B-B fraction	.....	.....	95,760	2,280	244	85,400
Butadiene 46.6% at 5 lb. per gal.	.....	.....	40,000	952	100	35,000
Iso-butylenes	.....	.....	30,180	710	76.5	26,775
Normal butylenes	.....	.....	26,480	618	67.5	23,625
C_5+ "gasoline"	.....	.....	84,000	2,000	.....	.....

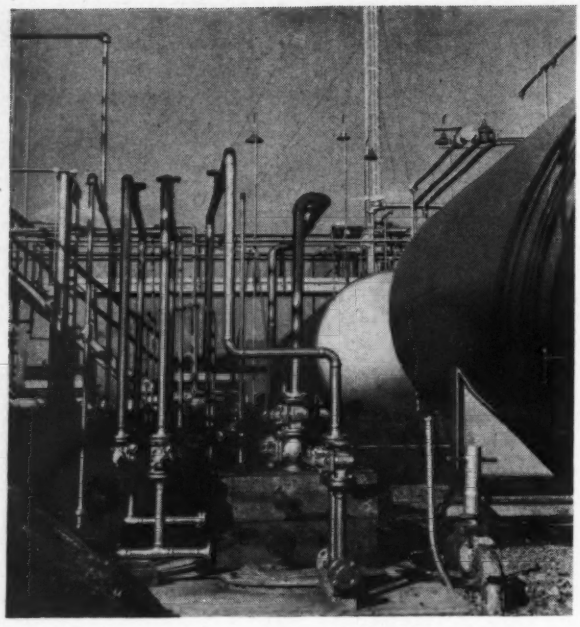
*1100 Btu. gas. †Fuel oil.

the gas is cooled by water quench. This operation results in a "wet" gas (up to and including C_5+ compounds, at atmospheric temperature and pressure) equivalent to approximately 9.5 cu. ft. per lb. or 60 weight per cent of naphtha charged, which wet gas contains about 2.7 volume per cent butadiene representing about 3.5 weight per cent of naphtha.

The gas generators, as remodeled from their former design of straight-shot, up-fire, down-make oil gas machines, have the following internal arrangement, from the top to the bottom: Heating chamber for oil or gas firing; superheater checkerbrick section supported on arch; charging or "make" chamber; cracking checkerbrick section supported by piers from bottom of generator; gas offtake to washbox; flue offtake through naphtha preheater to stack. There is one naphtha preheater and stack to each two generators, with one generator heating while the other is making gas. On the "heat" portion of the cycle, fuel and air will be introduced into the top of the generator and the hot combustion products will pass down and out of the flue offtake, heating the superheater section to approximately 2000° F. and the cracking section to 1350-1400° F. On the "make" portion of the cycle, steam at 700° F. (400° F. superheat) will be injected above the superheating section, and naphtha vapor at 700° F. (from the naphtha preheater) introduced between the superheater and cracking sections; the steam coming down through the superheater checkerwork will mix with the naphtha vapor, the mixture traveling down through the cracking checkerwork and out of the gas offtake to a water quench. The



Giving an indication of the Southern California project, this picture shows a plant placed in operation by the Firestone Tire & Rubber Co. on April 25, 1942. The synthetic rubber obtained from this plant is sufficient to replace the natural rubber obtained from 100,000 acres of rubber trees.



Nordstrom valves installed on raw material transfer pumps.

Tanks used to store butadiene. (Official OWI photo by Palmer.)

cycle for any one generator will be of the order of seven minutes heat, six minutes make, and two minutes purging and valve manipulation, or a total of 15 minutes.

The above operations, and the design of the generators, are based on an extensive series of plant scale pilot generator operations which have been in progress for the past several months, using a 20 ft. by 38 ft. generator and regular gas plant equipment. The internal brickwork of the generator was rearranged several times before the final arrangement was developed.

Table 1 summarizes operating material quantities as presently estimated. Table 2 gives the composition of the wet gas to the absorption plant.

Naphtha feed stock is to be delivered direct to the gas works by a series of inter-connected pipelines belonging to several companies. This complex pipeline system has been worked out with the cooperation of various oil companies and practically avoids the construction of any new pipelines and obviates the necessity of hauling gasoline by tank cars or trucks, which is impractical because of the large quantities involved. Likewise, the recovered light oils will be delivered out of the plant by a similar series of inter-connected oil company pipelines. The crude C_4 fraction will be piped out from the absorption plant to the Shell Chemical Co.'s purification plant south of Los Angeles; two-thirds of the length of this line will be rented from an oil company and the balance constructed new.

The selection of Southern California Gas Co.'s plant for the production of "quick butadiene" was based primarily upon the existence of large amounts of apparatus required for the process (approximately $6,250,000), with the consequent savings in the expenditure of new critical materials. This basic principle of saving expenditure of new critical materials has been adhered to as rigidly as possible throughout the entire plant construction. Used refinery equipment, such as fractionating columns, pressure vessels and tankage has been utilized wherever possible; chimneys, feed stock heaters and large water lines have been constructed of concrete rather than steel. There are no new buildings, other than a compressor house, involved in this project.

TABLE 2. COMPOSITION OF WET GAS TO ABSORPTION PLANT

		Mol Per Cent
Carbon dioxide	CO_2	0.4
Nitrogen	N_2	0.7
Hydrogen	H_2	19.0
Carbon monoxide	CO	0.9
Methane	CH_4	32.4
Ethylene	C_2H_4	24.5
Ethane	C_2H_6	3-1
Propylene	C_3H_6	10.9
1:3 butadiene	C_4H_6	2.7
Iso-butene	C_4H_8	1.7
n-Butenes	C_4H_8	1.5
Butanes	C_4H_{10}	0.1
C_4 acetylenes	.....	0.2
C_5+	.....	1.9

Fuel Forecast for this Winter

THE Office of War Information reports that fuel prospects for the coming winter are, as of June 21, as follows:

Fuel shortages can be avoided only if—

1. Large consumers of fuel oil, those using more than 10,000 gal. a year, convert their oil burners to coal burners now.

2. Both home and industrial users of bituminous coal order coal now—give their dealer the most latitude possible as to kind, size and quality, and store as much this summer as their dealers can supply. (An anthracite program is now under consideration by Solid Fuels Administration.)

3. Householders place orders for insulation, weather stripping, storm windows, etc., now.

COAL. The nation's 1943 requirements for soft coal are largest in history. For anthracite, 1943 requirements are 5,000,000 tons more than 1942 production.

To meet 1943 coal requirements, coal must be mined at full capacity every month; coal must be kept moving at full capacity of transportation lines; users must get every ton of bituminous coal they can into bins and stockpiles.

OIL. The Petroleum Industry War Council estimates that the nation's crude oil requirements for 1943 will average approximately 3,990,000 bbl. a day, and will rise to an average of nearly 4,270,000 bbl. a day in the first three months of 1944.

To meet 1943 crude oil requirements, transportation facilities must be stretched to their utmost, and fuel oil and gas rationing restrictions must not be relaxed. Heavy military demands may mean even more severe restrictions.

THE POST-WAR ACTIVITIES
Of the American Gas Association

By A. M. BEEBEE

Chairman, Post-War Planning Committee, American Gas Association
General Superintendent, Gas Department, Rochester Gas & Electric Corporation

THE word "post-war" has become so common and so frequently related to subjects that are difficult of visualization that many are apt to pass it by with a shrug of the shoulder. Yet it is a very vital subject and the more one studies this subject, the more convinced one becomes that it is capable of data of real value and is decidedly worth while.

The amount of material that one sees on the subject of Post-war Planning is so great that it sometimes seems overwhelming and confusing. On the other hand, failure to study this subject is apt to find us in the post-war period in an unprepared condition similar to our unpreparedness for war at the beginning of the war. When the war ends, a critical period will be ushered in that will be just as vital to the welfare of the future as is the winning of the war, because without proper planning, chaos and confusion can result at the cessation of hostilities which can be nearly as devastating in its effect, if not more so, than might have been the loss of the war. It is realization of these points which has caused so many to give consideration to the matter of post-war planning and which has precipitated the confusion that sometimes seems evident.

On the other hand, there is a great deal of data that should be intelligently analyzed, in order to make possible reasonable planning in the future.

Fundamental Premises

The Post-war Planning Committee of the American Gas Association started with the following fundamental premises:

1. By having a small group (such as our committee) studying all these related factors, the great majority of the industry can feel free to bend their efforts in the direction of winning the war, since they will know that the matter of post-war planning is not being neglected.

2. The Post-war Planning Committee, after carefully surveying the situation, quickly came to the conclusion that post-war planning, unless carefully formulated, is apt to involve such a wide field as to be very confusing. We must not spread our efforts so thin as to be of no value. We therefore concentrated our efforts on four basic fundamentals, as follows:

(A) Post-war purchasing power and potential markets.

(B) Competitive factors that will see the realization of the potential market.

(C) The factors which will enable our industry to achieve the potential markets.

(D) The effect of national planning and trends.

It was our thought that after these four basic studies have been rather thoroughly covered they can be the foundation stones on which to build post-war planning, both from an industry-wide point of view, as well as from the point of view of the individual company.

A. M. Beebee

ALEXANDER M. BEEBEE was born in Rochester, N. Y., in 1892. He attended Cornell University, receiving an M.E. in electrical engineering in 1915. In 1916 he became affiliated wih the Rochester Railway & Light Co. (now Rochester Gas & Electric Corp.). His career with that utility has been one of constant progress—in 1921, assistant superintendent of gas manufacturing; in 1926, superintendent of gas manufacturing; in 1927, general superintendent of the gas division, in which position he has supervision over gas manufacturing and distribution, construction work, and research activities of the company.

Mr. Beebee has appeared many times on the lecture program platform, notably at Massachusetts Institute of Technology, and in addition has had many articles published in the leading gas journals. He has been continually active in the work of the various gas associations, notably the American Gas Association, serving as vice chairman and chairman of the Technical Section in 1938 and 1939, respectively. He received the Beal Award for the best technical paper presented before a meeting of the American Gas Association in 1938.

3. The committee quickly came to the conclusion that no association activity can do all the post-war planning for all the companies. There is, however, a very definite service that combined post-war planning can perform for the industry. In other words, we feel that there are some basic fundamentals facing the industry on which all the companies will need information, in order to enable the various companies to intelligently plan their own post-war activity.

The above program has received enthusiastic support which has been most encouraging, and our Post-war Planning Committee will soon be in a position to submit the results of some of its findings.

However, at the present time, we are in a position to briefly outline the present status of the studies which we call our four main building blocks (A), (B), (C) and (D), described in item 2 above. A brief summary of these activities is outlined below.

A. Post-War Purchasing Power and Potential Markets

By C. V. SORENSON, chairman, and supervisor of new business, Northern Indiana Public Service Co., Hammond, Ind.

THIS phase of our activity will attempt to develop the changes that have taken place in the potential purchasing power, spendable income, shifts in population, consumers' preferences and types of housing construction as a result of the war so as to enable a forecast to be reasonably made as to the markets that lie ahead for gas-consuming appliances, neglecting competitive factors. In other words, this activity is the advance guard out in front of the front lines, seeing what lies ahead.

It is not necessary to emphasize that there have been great changes in the location of spendable income and purchasing power in this country, and the fact that its present location may have a surprisingly low saturation of appliances can develop tremendous potential markets.

The sub-committee on post-war purchasing power and potential markets has resolved its studies into the following subjects:

1. Probable business conditions in the post-war period.
2. Post-war spendable income.
3. Shifts in population and the effect on markets.
4. Probable post-war home building.
5. Post-war markets.
6. Customer preference.

This sub-committee has undertaken the task of analyzing a mass of data which is available from authoritative sources on probable post-war economic levels. It has been necessary to separate long-range political ideals from practical problems which will directly affect post-war markets. The principal advantage of this phase of the work will be to present the foregoing information on a national level in such a manner as to permit its use at an industry or company level without the necessity of a vast duplication of work and study. It is intended that a bibliography will be included in the final report which will be of help to the companies that may care to investigate this phase of the subject more fully.

It is generally conceded that post-war income levels will have a very important effect on markets because of the unsatisfied desires of those wage earners who move into higher income brackets. A vast accumulation of war bonds estimated to be in excess of $24,000,000,000 will constitute a reservoir of spending power for post-war goods. To this can be added approximately $10,000,000,000 of consumer installment credit which has been liquidated since September, 1941. Studies by various authorities indicate that median incomes have increased approximately $700 per year between 1936 and 1942 and, at the present time, there are approximately 20,000,000 consumer units in the country with increased optional spending power of $1100 per year. The United States Department of Commerce has estimated that in the 12-year period from 1929 to 1940 consumer expenditures were 91% of disposable income and probably will return to that ratio when goods are again available.

Shifts in population will directly affect post-war markets in a great many areas throughout the country. A very complete statement of this problem was contained in an article by Philip M. Hauser of the Bureau of Census in the March issue of the AGA Monthly.

The home-building program in the post-war period will be an important phase of the post-war marketing problem facing the gas industry. Here, again, a great deal of material on this subject is being examined and will be condensed for quick reference. Authorities agree generally that there is a large potential demand for housing, and differ only as to its size, although it is pointed out that a cessation of building does not necessarily create a deferred housing demand. Demand exists if people have purchasing power, and this fact ties in directly with the probable economic level referred to in the first part of the study. Conservative estimates seem to place the number of new homes to be built at approximately 1,000,000 per year for a 10-year period, and in arriving at these figures consideration has been given to the small number of homes built in the 10 years prior to the war, to the demand created by the formation of new families, to the demand for better housing created by higher income levels, and the need for replacement of obsolete housing. One authority estimates that $1750 annual earnings will permit a $3500 home without subsidy and that a $109,000,000,000 national income level would move 6,738,000 consumer units above the $1750 per year class.

Post-war markets of the gas industry will be affected by several factors:

1. The replacement market for appliances which are wearing out and becoming obsolete, and market surveys being made by individual gas companies will prove of inestimable value both to the gas company and the manufacturer.

2. The market which new homes will create.

3. The gas home heating market created by new home construction, and also by an appreciation for gas heating which is being accelerated because of war-time fuel shortages. This committee can estimate the size of this market but the individual company will have to determine how much gas home heating it wants.

4. The improvement in living standards, made possible by higher income levels, will create vast new markets. Data have been collected showing the present distribution of gas appliances by income levels and, using this as a guide, it is possible to estimate the appliances that can be sold to consumer units with increased optional spending power.

5. Through the Home Service Section of the association a considerable amount of data has been collected indicating the preference expressed by customers for certain types and styles of appliances. This information, while not final and conclusive, will give the gas industry and the appliance manufacturers some very helpful ideas about future customer demands.

B. Factors Affecting the Realization of the Potential Markets

By R. J. RUTHERFORD, chairman, and vice president of Worcester Gas Light Co., Worcester, Mass., and R. E. GINNA, assistant to the president, Rochester Gas & Electric Corp., Rochester, N. Y.

THIS phase of the committee activity will study the development of competitive factors that may prevent us from, and also may aid us in, achieving the potential market developed by study "A." In other words, Mr. Rutherford's committee is our intelligence division, trying to determine the strength and activity of the enemy.

The great changes which have taken place in the oil industry may be the means of placing on our doorstep loads requiring heat in a quantity undreamed of before. On the other hand, the competitive conditions which the electric industry may be in a position to throw into our basic market may likewise be tremendous, and Mr. Ginna's committee is to study the economics and potential strength of that competition.

1. Summary of Competitive Factors

By R. J. Rutherford

THIS sub-committee has attempted to refine its problems into three groups, keeping in mind that each factor may be adverse or beneficial, and must be studied from this viewpoint. The three groups are:

1. Sales policies and practices of our own industry—past, present, planned.
2. Electric industry competition.
3. Other energy competition, namely, coal, oil and liquefied petroleum gases.

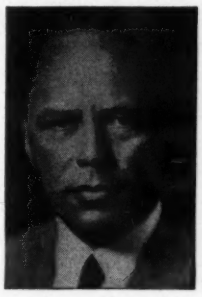
Some of the high spots of this sub-committee's activities might be of interest. The group studying sales policies and practices has divided the problem into three time periods: present, one or two years after the war ends, and the years following this period. Under the present period they recommend that each company analyze its past policies, plans and programs on sales, and thoroughly study them with the idea of revising, discarding or adding as necessary.

This group is interested in our industry, arriving at basic policy commitments. It hopes to achieve unanimity of thought among the utilities, that they are willing to assume full responsibility for all load building and merchandising activities within the area they serve. It is felt that such a basic policy would not conflict with any of the successful plans of the past. They hope to set up the present thinking of all utilities and obtain information as to which of the four plans each utility

Gas Industry Leaders in the American Gas Association Post-war Activity

R. J. Rutherford

C. V. Sorenson



W. C. Beckjord

Hall M. Henry

R. E. Ginna

will follow in post-war. These plans are as follows:

1. No interest in load building or merchandising activities.
2. Utility merchandising, but competitive operations with other outlets.
3. Utility merchandising, but non-competitive cooperation with other outlets.
4. No utility merchandising, but full cooperation and direction of other outlets.

It is apparent that the answer to this problem will be of immense interest and value to the manufacturer's planning for post-war. If he is able to count on utilities assuming responsibilities and direction, his problem is considerably simplified.

This group is also concerned with the present in formulating hiring and training programs of sales personnel. It is studying the possible effect on the post-war public demand of present visionary advertising done by various companies and publicized in various magazines.

For example, if the public mind is led to believe that immediately following the war a lot of new gadgets of revolutionary design are going to be made available, it will make going through the period of one or two years following the war more difficult. Actually, indications are that manufacturers will be fortunate to provide pre-war models, let alone revolutionary designs.

As to the future, this group is concerning itself with the probable ability or inability of ourselves and other outlets to meet post-war merchandising. It is also studying new methods of distribution that may arise, such as credit unions, consumer movements, etc.

The third group of this sub-committee is concerned with keeping abreast of three forms of energy competition: coal, oil and liquefied petroleum goods.

The group is trying to keep abreast of such developments so that their effort may be studied as they relate to our industry. The coal situation is being followed, although with an apparent supply variously estimated between 1500 and 3000 years, it does not require much following. The coal industry, however, is hard at work on post-war planning. Stoker research is progressing. If the oil industry does vacate the domestic heating market in post-war, then the coal industry and ourselves are certainly going to be concerned and their plans are going to be of interest to us.

As to liquefied petroleum gases, little can be compiled because of their close tie-in with all factors affecting the oil picture.

2. Summary of Electric Competitive Factors

By R. E. Ginna

JUST a few facts to picture the problem of gas versus electricity in the home. Only about 20% of annual kilowatt-hour sales and about 37% of annual revenue is obtained by the electric industry in the American home, whereas the manufactured gas industry depends on the home for about 70% of its sales and obtains almost 80% of its revenue therefrom. It is rather interesting that the natural gas business has a domestic sales ratio more in line with the electric utilities, being about 27% and 55% respectively.

Now, the only other figures to keep in mind are the amount of money invested in these public services.

Manufactured gas	$ 2,140,000,000
Natural gas	2,580,000,000
Total for gas	$ 4,720,000,000
Electric utilities	$14,740,000,000

From these few figures it is plain to see that the manufactured gas industry has a tremendous stake in the future of the American home.

At the present time a popular best seller (millions of copies) bears the title of "One World." The author invites everyone to help create a new society. As part of this picture I visualize the home of tomorrow in which both gas and electricity play a significant and useful part.

To win this place, both "horses" (gas and electricity) must be "favored" equally, and an unequal or unjustified "application" of the sales whip to either one will throw the team out of stride and slow up the race.

In the home of tomorrow there is room for both gas and electricity and the need for a healthy rather than ruinous competitive situation in the post-war period should be obvious.

The need for a mutual understanding of each other's problems and a true consideration of their relationship to each of the industries is urgent and requires cooperative study and planning. That it can be done is evidenced by the fact that in general it is being done by combination companies.

For some years I have been privileged to devote considerable study to the economic aspects of serving the domestic requirements with gas and electricity both from the consumer and company standpoints. These studies pointed the way to a new conception of the advantages and disadvantages of certain domestic services and now constitute a basis for further analyses of:

1. The demand and diversity effects of various types of loads.
2. Capital costs:
   (a) Distribution investment, both electric and gas—necessary to serve various combinations of use on systems designed for new developments and on existing systems.
   (b) Generating and transmission facilities for supplying additional loads of the various types.
3. Operating costs, both electric and gas, for producing, transmitting and distributing under various conditions the component parts of the domestic load.
4. Costs to customers:
   (a) Under present rates.
   (b) Under possible rate modifications.
5. Competition by publicly owned electric systems.

Someone said recently that post-war thinking would be stimulated if each group so engaged would offer tentative conclusions or objectives as they may develop from the particular industry's

planning. So here are some that I have tried to reduce to a minimum of technical terms:

1. Everybody will have electricity.

2. Twenty-five per cent increase in electric generating capacity (one-half of this is in publicly owned systems).

3. Probably most of this increased capacity, plus some additional capacity released by industrial recession will be available for new loads after the war.

4. This available capacity, together with the decrease in double and triple shift factory operation, will eliminate for some time any concern among electric utilities regarding the 6 o'clock cooking load in urban communities.

5. The electric industry has already available adequate statistical data to determine the economics of all classes of service, and in this regard electric companies are urged to selected load building that is founded upon and restricted to the particular system's economic limitations.

6. The gas industry is sadly lacking in reliable statistical data on the various types of loads.

7. From the customer's standpoint, manufactured gas now wins over electricity on economic grounds for the cooking load.

8. Natural gas excels economically over electricity for cooking, water heating and refrigeration.

9. For extensions to new homes of tomorrow, a medium pressure distribution system with house regulators involves less capital investment than a low pressure system.

10. Existing low pressure systems should be converted to medium pressure if any considerable load is to be added, especially if house heating is to be promoted. The insulation of homes on existing gas distribution facilities should be promoted now so that such homes can use gas for house heating after the war.

11. The difference in capital investment between a distribution system designed for minimum customer usage and one adequate for maximum customer usage is relatively unimportant in the case of either gas or electricity. The additional investment for additional domestic loads is less for gas distribution systems than for electric. In either case the increment investment cost is small compared with the additional load and the economics of increment business resolve largely into the capital and operating costs for production and transmission.

12. Although gas shows more favorably in the incremental distribution investment picture, it is well to keep in mind that the initial distribution investment to supply the cooking customer in the case of gas is *almost twice* that for making electric service available for the base lighting load.

13. When it comes to the investment and operating costs for producing and transmitting, there are some general things which are known about the gas business, but there is a good deal which is not known but which should be, to analyze the problem intelligently.

We know that the use of gas holders makes a maximum hour relatively unimportant to the production plant, but the maximum day is something of great concern, and in order to analyze and evaluate existing and contemplated loads of the various types, it is highly desirable that we know more than the fact that the maximum hour comes on Thanksgiving Day, and the maximum day comes on the coldest day of the year. We ought to know more about the characteristics of cooking, water heating, and refrigeration, both hour by hour and day by day, so that we will know what either of them, singly or any combination of them, will mean to the plant. Adequate testing equipment is expensive and cumbersome. Studies and tests are being made, however, and it is hoped ultimately to make a substantial contribution to the present inadequate store of knowledge.

Of course, adequate data regarding the space heating load is even more imperative. The effect of space heating loads on production plant and possible economies in production are being considered by a selected group of experts under Hall Henry.

C. Engineering and Economic Aspects of Our Own Ability to Satisfy the Potential Market

By HALL M. HENRY, chairman and assistant to the president, New England Gas & Electric Service Corp., Cambridge, Mass.

THIS phase of our program will be given over to a study of the economic factors which we have definitely in our favor to enable us to overcome the enemy, as well as to study the weak points in our defense. In other words, Mr. Henry is our general in charge of these factors which supervise the bringing up of supplies and passing the ammunition.

Economics of House Heating: One of the assignments is to determine the economics of house heating and to include in this study production costs as well as the possibilities of using medium pressure distribution system versus low pressure system. This study will be undertaken by the Market and Economic Research Committee, Economics of House Heating Sub-committee, headed by H. O. Loebell.

It is expected that this report will be completed in the near future and made available to the industry.

Main Extension Policy: It is the intention of the Sub-committee on Engineering and Economics of our industry to study main extension policies from the standpoint of the economics of making these extensions.

This study will be undertaken by R. E. Ginna of the Rochester Gas & Electric Corp. No outline is available at this time on this phase of the committee's work, but as one is developed it will be forwarded.

Distribution Studies: The following indicates the general program of studies and activities to be undertaken by the Sub-committee on Engineering and Economic Phases of Our Gas Business of the Post-war Planning group.

A. Is there any one best, most economic gas distribution system?
- a. Low pressure
- b. Medium pressure (5 lb.)
- c. High pressure

Note: What are the factors which will make one system more economical than another?

B. What economies (if any) can be realized by dehydration of gas?
- a. Labor costs:
  1. Pumping drips
  2. Service complaints
  3. Diaphragm trouble
- b. Cost of laying mains
  1. Can they be laid at shallower depth?

One writer claims costs 1.1¢ per Mcf. to dehydrate but can save 2¢ per Mcf. Another claims costs only ½¢ per Mcf. to dehydrate. Just what are the factors that go into the cost of dehydration?

C. Study several typical distribution systems.
- a. Companies with 10,000 meters; 50,000 meters; 100,000 meters; over 500,000 meters. (Or any grouping of meter-size companies that the committee would consider best.)
- b. To determine what changes can be made to obtain the greatest carrying capacity with least incremental costs.
  (a) Additional feeder mains.
  (b) Convert to medium pressure system.
  (c) Convert to high pressure system.
  (d) District holders.
  1. Low pressure
  2. High pressure.

R. G. Griswold of Electric Advisors, Inc., states—consult American Gas Association Proceedings 1922-1923.

D. What are plastic pipes? For
- a. Distribution.
- b. Service.
- c. House piping.

Give advantages—first costs and maintenance costs.

E. What problems would be raised by distributing a methane oxygen mixture, say, 80% methane, 20% oxygen?
- a. Corrosions.
- b. Efficiencies.

We understand this mixture is not explosive at ordinary pressures.

F. Effects of distributing high Btu. gas (800 to 1000 Btu.) versus low Btu. gas (500 to 600 Btu.)

a. Relative investment costs.
b. Labor costs, etc.

Production Studies: The following indicates the general program of studies and activities to be undertaken on production costs by the Sub-committee on Engineering and Economic Phases of Our Gas Business of the Post-war Planning Committee.

A. Trends in Production Costs: A study is to be made of production costs of a number of companies over a period of years to determine the general trends in production costs. The purpose is to determine whether or not any companies have found any methods or fuels which have resulted in lowering production costs. The committee believes we ought to discover all those factors that are available to the industry for lowering production costs so that companies not using newer fuels or methods may do so.

B. Effect of Larger Sendouts on Costs: The thought here is that we ought to bring to the attention of the industry what would be the cost to make additional quantities of gas in excess of those now being produced in a given situation. This study would be undertaken in those companies that have had substantial increases in sendout over a period of years. The effect of these larger sendouts will be studied from the following angles:

1. Fuel costs.
2. Labor costs.
3. Maintenance.
4. Purification.
5. Residuals.

C. Research: An attempt will be made to discover the most promising new processes for lower production costs and from these to select one or more for intensive research. This would be broken down into two or three steps.

a. *Gas Institute of Technology Proposal:* The Gas Institute of Technology has several promising gas research projects which should be studied by the industry and if found promising will be considered for more intensive research and development.

b. *Promising Projects Advanced Over Past Years:* A study of the different processes which have been suggested for research over the past 10 to 15 years will be undertaken by the Technical Section of the American Gas Association in the following manner:

1. A list of these processes.
2. Statement of the claimed advantages.
3. Statement of the probable disadvantages.
4. Statement of the known operating difficulties.
5. Statement of amount of research done on these to date.

The most promising ones to be considered for research.

c. *Suggested Research Projects From the Technical Men of the Industry:* The thought here is that some of the men in the industry may know of some processes which have not been written up but which offer promise and should be considered from a research angle.

1. Upgrading of low Btu. gases. This question should be carefully considered by the Post-War Planning Committee along with the other items listed above.

D. Peak Load Equipment: We should determine the most economical way of obtaining peak load production of gas and in connection with this the following might be investigated:

a. *Use of liquefied petroleum gases.*
   1. Air-gas mixture with city gas.
   2. Reform in the water gas set.
   3. Cold enrichment.
   4. As regular enriching fuel in place of oil.
b. *Three-minute cycle.*
c. *Use of oxygen.*
d. Any other methods that might be suggested.

E. Bring Up-to-Date Perry Gas-Making Research Study: In 1930 a study was made of a number of so-called promising gas-making innovations. The study disclosed the then known advantages and disadvantages of these promising projects. It would seem advisable to restudy these projects in light of the developments since 1930.

Shortcomings of Our Existing Appliances and New Developments: This committee is charged with the responsibility for determining the shortcomings of our existing appliances from the standpoint of meeting post-war competition and to determine what new gas appliances should be made available to satisfactorily meet our post-war market.

This committee proposes to function somewhat along the following lines:

A. *Survey of shortcomings of existing appliances through:*

a. American Gas Association Home Service Committee.
b. Appliance committees in regional associations.
   1. New England Gas Association.
   2. Midwest Gas Association.
   3. Pacific Coast Gas Association.
   4. Indiana Gas Association.
   5. Metropolitan Air Conditioning & Heating Committee.
   6. Southern Gas Association.
   7. Other gas associations.
c. Manufacturers of equipment.

B. *New Developments:* Here again, through the various regional associations, attempts will be made to discover what new developments should be undertaken to meet post-war market needs. In this connection the New England Gas Association has a sub-committee investigating the desirability or non-desirability of combining in one appliance water heating and cooking or water heating, cooking and kitchen heating. Undoubtedly similar developments will be forthcoming from other regions and through individual initiative of the gas company employees.

C. *Action on the above:* In addition to determining the shortcomings of existing appliances and what new developments are desired, this committee will also endeavor to bring to the attention of the proper parties the recommendations of this committee and to obtain suitable action on its recommendations.

D. The Effect of National Planning and Trends

WALTER C. BECKJORD, chairman, is vice president and general manager, Columbia Gas & Electric Co., New York City.

THIS phase of the program will study those general economic developments of a general social nature, such as government planning, etc., which may affect our markets and our ability to realize the potential market developed by Mr. Sorenson's activity. In other words, Mr. Beckjord's committee will be engaged in reconnaissance work to determine what other factors may affect the present battle scene and which may not immediately be involved in the battle.

This activity will of necessity have to be reported on later, as conditions develop.

SUMMARY

From the above I think you can appreciate that our program is a very far-reaching one, and when the committees have finished their studies, the results should be some fundamental building blocks on which post-war planning can be safely and wisely built. In other words, after these studies are finished, we can then consider the type of sales activities and policies, dealer and utility relationship, and other forms of enterprise that the industry should consider, in order to better enable it to achieve its legitimate market.

The Post-war Planning Committee has felt that there were certain phases of our activity that were self-evident, and we have already drawn up two resolutions, which were presented to the Executive Board of the AGA and favorably voted upon by that body. These resolutions are as follows:

RESOLUTION No. 1

"In view of the many forces that are at work created by the war, by competing industries, and by various phases of social and economic planning, it is vital to the welfare of our industry that we actively support, promote and further develop the National Advertising Program of the gas industry."

"The Post-War Planning Committee later on will develop data to bring to the attention of the industry the seriousness of the situation outlined above. In the meantime, however, we feel it important to call this matter to the attention of the gas industry at the earliest possible moment, so that no time will be lost in lending our support to this most vital activity."

RESOLUTION No. 2

"Because of the needs of the country generally at this time, it is recommended that the gas industry give wholehearted support to the subject of building insulation. Such a move not only fits in very definitely with the national need at this time, but when the post-war season is on us, every home that is insulated can better afford to consider the use of gas fuel."

POST-WAR MARKETING OF APPLIANCES

By ARTHUR P. HIROSE

Director of Market Research and Promotion, "McCall's" and "Redbook" Magazines*

THERE are many things about the post-war market for gas appliances which are surrounded by a host of question marks. Until the war is actually over, no one can know with certainty the answers to three vital questions: (1) what sort of economy we will be living under in America, (2) how much money will be available for gas appliances, and (3) what will be the attitude of people to whom gas appliances must be sold.

But of one thing I'm very certain: The pre-war days in gas appliance marketing are gone forever. They're gone because the economic, political and social changes which the war is breeding will make it impossible for the business of selling gas ranges, water heaters and other appliances *not* to change.

All manufacturers, gas appliance companies included, will face certain changed physical marketing factors after the war. Manufacturers would do well to consider carefully these changed general marketing factors, since they will affect the post-war marketing of gas appliances. They have to do with the dominant age groups in our population, with the new importance of women in the post-war world, the marriage and birth rate, possible income changes, population shifts, improved transportation, new forms of communication and the development of changes in housing, notably in the prefabrication of individual rooms and complete homes.

Post-war marketing of gas appliances will be affected by general market conditions, by changed conditions within the appliance industry, and by conditions in competing industries. Let's examine possible conditions within the home appliance industry itself, taking into account what the electrical appliance industry is likely to do.

Appliance Manufacturers After the War: There will undoubtedly be many more manufacturers in the home appliance business after the war than there were in the pre-war days. Most pre-war appliance manufacturers will resume appliance production. To this must be added the appliance manufacturers who will expand their lines such as the range manufacturer who will add an automatic refrigerator when he resumes manufacture and the gas range factory that adds electric ranges, etc. The third group of appliance manufacturers will be composed of the companies which before the war made no appliances at all. This group embraces some of the aircraft companies, possibly some of the shipbuilding concerns, some chemical factories, etc. More of these companies are planning to make *electrical* appliances rather than *gas* appliances.

Much of the excitement to the appliance industry and to consumers will come from these brand new manufacturing factors in the business. With no hampering traditions in appliances behind them, they can be expected to bring out radically new and different appliances. These, in turn, may be sold in unorthodox ways at unorthodox prices. This lack of tradition and a tendency to try the unorthodox will constitute both the assets and liabilities of these new appliance manufacturers. They will stir up things and some of the resulting commotion will be good—some of it bad.

It is evident that gas appliances fall into two groups—the range and the refrigerator for the kitchen and the water heater and home heater and air conditioner for the cellar.

Before the war commenced, the electric range was making inroads into the gas range market, and electric refrigerators were outselling gas refrigerators. Even today, while the war is going on, electrical appliance manufacturers have not stopped advertising the all-electric kitchen idea.

The post-war market will consist of two separate and distinct parts—existing homes and new homes. Experience in the past has shown that equipment in new homes influences the appliance purchases of families living in old homes.

It is apparent that electrical appliance manufacturers are planning on determined efforts to push the all-electric kitchen for new post-war homes and especially for prefabricated homes. The trend toward the all-electric kitchen will be accelerated unless kitchen gas appliance manufacturers combine forces to promote the gas kitchen. Makers of gas water heaters and gas heating and air conditioning systems have a stake in this fight, too. Certainly if the fight is lost, more and more homes will be erected without connections to gas mains or with LP-gas service.

The Question of 1942 or Newer Models: Heated discussions are now going on as to what the post-war appliances will look like. Will they be first cousins to the 1942 models or will they be something radically different? Most pre-war appliance manufacturers insist that for the good of the nation they will bring out first cousins to their 1942 models by quickly using their 1942 tools and dies. They point out that the period of conversion will be long enough without lengthening the period by fashioning new tools and dies. They argue that radically new appliances will need testing in the factories and out in homes and that such testing takes time.

Allied against these existing appliance manufacturers is a collection of industrial designers, plastic makers, suppliers of glass and alloys, companies which expect to enter appliance manufacture after the armistice, and a crowd of vocal and articulate exponents who insist the brave new post-war world must bear no resemblance to the old-fashioned world of 1941-1942.

It is my personal conviction that the first gas appliances put out must be first cousins to 1942 models. I say this not because I'm opposed to improvements but because with models similar to those of 1942, a plant can more quickly convert to peace-time production and thus speed re-employment of workers. These first appliances produced after the war will take care of the most insistent consumer needs and can be succeeded by newer models.

If we permit the public to believe that radically new and even fantastic gas appliances will appear the day after the armistice, they will be in for disillusionment. It is better to do the disillusioning job now and tell consumers that changes in post-war gas appliances will be gradual or evolutionary rather than revolutionary. Isn't this a job that everyone in the gas ap-

*Excerpt from a talk given to the annual meeting of the Association of Gas Appliance and Equipment Manufacturers, Waldorf-Astor.a Hotel, New York, June 29, 1943.

pliance industry should be doing now, in advertising and by word of mouth?

Appliance Prices: While the general trend of competition will be to reduce the price of appliances, this cannot be expected right after armistice day. War-time prosperity, generally speaking, cuts down the rich and moves millions of the lowest income people into the middle class. After the war the great and expanded middle class will be the big market.

While manufacturers will want to lower the cost of distribution in the post-war era and thus lower the price of gas appliances, I hope they won't lose sight of one marketing factor. This factor is a sufficient margin to do sales promotion and advertising on a far wider scale than was the habit in the gas appliance industry before the war. In the pre-Pearl Harmor days the competition of the electric appliance people in ranges, refrigerators and water heaters was severe. So was the competition of the oil burner and coal stoker people. Unless the gas appliance industry's share of the home appliance market is to decline percentage-wise, there must be ample margin in prices to allow for radically increased selling, sales promotion and advertising.

Appliance Distribution After the War: The big problem of the post-war period will be the problem of appliance distribution.

It is true that most of the distribution channels through which gas appliances were distributed before the war will either be in existence when the war is over or can be re-constituted. But the competition for the time and attention of these distribution channels will be greater than ever before. Likewise, these dealers will face livelier competition than in the past, both from new and old retailers.

Utilities: Because their primary function is the supplying of gas or gas and electricity, there seems little doubt that the utility companies will survive the war. The electric utilities will probably find themselves with some excess generating capacity after the war, even though this excess capacity may not be as large as some expect it to be. The natural tendency for the electric utilities will be to stimulate not only the peace-time industrial and commercial load but the domestic consumer load as well.

However, not all electric utilities will merchandise appliances after the war. Many of them did no appliance selling before the war. Even some of the electric utilities which sold appliances before the war may not resume selling in the post-war period. On the other hand, there are those electric utilities which sold appliances before the war and will go back into merchandising.

Those electric utilities which will not do any selling of appliances after the war feel that local trade conditions are better without utility-dealer competition. Some of them say that one happy result of the war is a chance for the utility to discontinue appliance selling. Other utility men point out that there will be more and better appliance distribution outlets after the war and there will be no need for the utility to participate, because the newer, better dealer outlets will build all the domestic load necessary. So much for some of the reasons why many electric utilities will do no appliance selling after the war.

But there will be a goodly number of electric utilities which will resume appliance merchandising after the war. Some will not sell the appliances that have large public acceptance, like the washer and the vacuum cleaner, but will concentrate on electric ranges, electric water heaters, frozen food chests, clothes dryers and similar items that need pushing. The reasoning of these utilities is that if they themselves don't do the pioneering job, no local dealers will. Other utility men whose companies will return to appliance selling in the post-war period support this move by saying that more and more appliance saturation will be necessary to build up the domestic electric load. They say they can't depend on the local dealers to do this job.

The attitude of the electric utilities has a bearing, not only on the plans of the gas utilities, but on the gas appliance manufacturers' plans.

Gas utilities will probably not have as much excess plant capacity as will the electric utilities. Yet there is a division of opinion among the gas companies as to whether or not they should merchandise, with about the same pro and con reasons as in the case of their electric competitors. But I submit that it will be necessary for gas appliance manufacturers to do all in their power to persuade gas companies to push the sale of gas ranges, gas refrigerators, water heaters, house heating and air conditioning.

There are a number of reasons why the gas appliance manufacturers will need to have the gas utilities in the merchandising business. One big reason is that without the gas company doing an aggressive appliance selling job, there will not be enough independent outlets in town doing a big selling job. Another important reason is that the gas appliance manufacturer needs the sales strategy locally which the gas company can give to the whole community selling job on gas appliances. It's my feeling that this sales strategy will be less forceful if the gas company itself does not sell appliances. Parenthetically, I hope you curb some of the utilities in their desire to sell price ranges and to want too many size and model changes.

But it would be a mistake to believe that utility sales of gas appliances will be enough to stem the competition of appliances using other fuels in the post-war period. Additional retailers will be needed. Where will these additional outlets come from?

Department Stores are a class of outlet that will survive the war, unless the unforeseen happens. Department stores will again be large factors in the sale of home appliances.

Mail Order Outlets: It is expected that mail order houses, like department stores, will be important and aggressive retailers of home appliances. What the attitude of both department stores and mail order houses will be to the national brands of appliances is not yet clear. Some of the mail order houses are listening to—and even encouraging—the suggestions of certain appliance manufacturers that the mail order houses sell nationally advertised appliances. I don't think we'll see for some time a condition where the mail order houses will give up entirely their private brands of appliances and sell only nationally advertised brands. In the case of one mail order house, I would be surprised to see them ever take on nationally advertised appliances to sell alongside their private brands. In the case of another large mail order house, I think it possible that on certain appliances which have not yet reached full public acceptance —the electric range, for instance—one may see this chain take on a nationally advertised appliance to sell along with its private brand.

With so many appliance manufacturers, old and new, in the business after the war, there should be a boom in appliance advertising, as well as in appliance merchandising. Even with private brands, the mail order houses and the department stores that sell private brands will benefit from the appliance advertising boom. But I think the gas appliance manufacturer who promotes his own nationally advertised line is better off than the appliance manufacturer who sells part of his output for private brand use.

Private Brands: This is a good place to discuss the future of the private

brand appliance business after the war. The trend is not yet crystal clear. Waiting for private brands will certainly be the mail order houses, some department stores and department store chains, and perhaps some chains from the auto tire and gasoline field. But at this moment I cannot see in the cards enough volume from all the private brand sellers to take care of too many appliance factories. Some of the newer appliance manufacturers will undoubtedly be competing with older manufacturers for whatever private brand business there is. Remember, too, in thinking of new appliances, or radically changed appliances, that private brands have always fared best, after the initial selling and advertising job has been done by the national brand.

Appliance Specialty Dealers: While this group has probably shown the highest rate of mortality due to the war, it will be a group that will be enlarged and expanded after the war. If there are not enough specialty appliance dealers in the picture when the war is over, electrical manufacturers can be expected to encourage business men to go into the specialty appliance business. Those electrical appliance factories which have full lines of home appliances after the war — and their number should be much greater than in pre-war days—will put on drives to establish full distribution through specialty dealers who push only the one manufacturer's line.

The full-line manufacturer will strive for control of his retail outlets, even if management and financial control are required. Failing in his efforts to build this sort of retail distribution through existing independent, specialty appliance dealers, the full-line manufacturer may go to a system of factory retail branches.

Building Supply Dealers: Here is a class of retail outlet which, before the war, was not an important appliance outlet. In the post-war period, however, it's likely that more and more appliance manufacturers, with a building boom in mind, will distribute some of the production through building supply outlets.

Prefabricated Home Manufacturers: Since a building boom of any magnitude in the post-war period will have to come from the erectors of prefabricated homes rather than the slower method of individual home erection, many electrical appliance manufacturers are already discussing with prefabricated home companies the question of supplying them with all or part of the appliance requirements of these new homes. There is manufacturing and distribution economy, at least theoretically, in the picture of the prefabricated home erector supplying the new home, and all of them paid for with the structure itself, on an amortizing basis, with the mortgage itself.

Miscellaneous Dealers: There seem to be no reasons to expect any great changes in other miscellaneous classes of appliance retailers—the hardware dealers, the plumbers, the house furnishing stores, the furniture dealers, the radio-music outlets, etc. All had their place in the pre-war appliance marketing picture. All should occupy some place after the war.

Before the war, consumers gave no great thought, in buying home appliances, to the facilities a dealer had for giving quick and efficient repair service. This was not true of automobile purchasers — they considered service. But appliance buyers assumed that appliances never would need repairs, or if they did, the local gas company would take care of them.

Home appliance manufacturers likewise were not extravagantly careful in pre-war days to see that their local dealers were properly equipped for appliance repairs.

The war has changed all this. Appliance service will be an important consideration in consumers' minds, at least for a few years after the war. Gas appliance manufacturers would therefore be wise to pick retail outlets that have a reputation for repair service and to see that this fact is well publicized.

With the coming increased competition from the electrical appliance field in mind, the gas appliance maker may be tempted to put on a drive for a large number of outlets. Isn't there a need for caution? Isn't one good, aggressive specialty selling outlet worth several dealers who merely stock a manufacturer's range, are swayed by price competition and in the end give the merchandise a bad name with the trade?

Some years ago I suggested the wisdom of considering the setting up of gas appliance distributors or wholesalers who would do a job comparable to that done with electrical appliances on the gas range, water heater, house heating equipment and perhaps gas refrigerator.

In the long run even the electrical appliance distributor or wholesaler may pass out of the picture, in the competition to reduce the cost of distribution. But in the early post-war stages it may be that appliance distributors can do a better job than the manufacturers' own men in beating the bushes and finding aggressive retail outlets. Remember, this business of realigning retail distribution will be no easy job, in the days after the armistice.

This much seems clear about distribution outlets for gas appliances in the post-war period: manufacturers will be wise to look at their pre-war distribution channels coldly and objectively. If such an examination shows inadequacy for an era of keener competition, then the appliance manufacturer will be smart to assemble new outlets, even if he has to discard, or cut across, lines of traditional distribution. Advertising will play a large part in post-war appliance competition, but there is no substitute for aggressive local appliance dealers.

Sales Training: While there has been some mortality in the retail appliance business because dealers have gone out of business, most dealers have hung on with a skeleton crew. Certainly when the war is over new appliance dealers can be expected to enter the business.

But the most serious mortality has been that of retail appliance salesmen. Many of them were younger men who have gone into the armed services. Others have gone into war plants. In any competitive market such as we can expect after the war, the retail salesman will play a vital part.

While it may not be the exclusive responsibility of the gas appliance manufacturer to train retail appliance sales people, this much is certain: that the manufacturer who has the best sales training program for retail appliance salesmen will enjoy an advantage of no mean proportions.

Advertising after the War: The consumer, in the post-war period, will be a better informed and a wiser buyer. This new knowledge—this new awareness—that consumers will have as a result of the war must of necessity have its effect on advertising in the post-war period. As a result of the war, consumers know merchandise. And so it seems reasonable to expect that they will not resent being given more information in selling and in advertising than in the past. This post-war desire for informative selling and advertising will be a good thing for both buyer and seller in the gas appliance market.

How long does it take for a woman to make up her mind what *type* and *brand* of kitchen range to buy? None of us knows exactly. And yet isn't it logical to assume that women today, while the war is still on, are thinking about their next ranges?

When you go home, put yourself in a woman's place. Go through the magazines that women read — *McCall's, Good Housekeeping, Ladies' Home Journal, Woman's Home Companion, Redbook,* and others, and what will

you find? You'll find a repetition of pre-war days. You'll find General Electric, Frigidaire, Kelvinator, Hotpoint, Westinghouse, Gibson and other manufacturers of electric ranges keeping up their advertising jobs, selling the virtues of electrical appliances. But the number of gas range manufacturers who are conditioning women to the value of their gas ranges after the war you can count on the fingers of one hand.

It would be a fallacious appeal to tell you only that carefully prepared advertising may qualify as an acceptable war expense deduction. It would be better to emphasize that national advertising throughout the balance of the war period in increasing tempo is a proper and essential time-saving foundation for your post-war advertising and selling efforts.

May I ask you to ponder this question: "With all the old and all the new electrical appliance factories after the war, can the gas appliance industry wage anything but a losing fight if it does as little national advertising as it did before the war?"

There are too many manufacturers of gas ranges. Three years ago I pointed out to you that when you divided the gas range business, on either a unit or dollars and cents basis, among the 90 or 100 gas range manufacturers, the share of the average manufacturer was small. I compared the large number of gas range manufacturers with the smaller number of washing machine manufacturers and their larger average share of their washer business. Comparisons were made with the refrigeration industry and with the automobile industry. In each case the comparison was unfavorable to the gas range industry. For a comparison of a similar character, and lest you think that I alone am "hipped" on this subject, I refer you to an article by Earl Lifshey in the June 7 issue of *Retailing*, entitled "Are There Too Many Gas Range Manufacturers?"

There *are* too many gas range manufacturers. Manufacturers would do well to consolidate and merge. Also consider the benefits of consolidation between gas range, water heater and central house heater manufacturers.

With a smaller number of gas appliance manufacturers, but with more large manufacturers, increased production per manufacturer could be secured, resulting in manufacturing economies, in better profits to yourselves and better facilities and margins for national distribution and national advertising. Above all, with fewer but larger manufacturers, better values in gas appliances will be possible for the consumer.

PUAA Annual Contest Winners

GAS companies were well represented when the results of the annual Public Utilities Advertising Association contest were made known by National Contest Committee Chairman E. N. Pope of Raleigh, N. C.

The purpose of the contest is to determine the best advertising developed by utility operating companies in 1942 and it is open to all such companies in the United States and Canada, regardless of their membership in the association.

Advertising was entered in 18 classifications embracing all media. Certificates of award to both national and regional winners were presented at a conference of the association held in Chicago on June 24 and 25.

National winners are as follows:

1. Public Relations Newspaper Advertising—Philadelphia Electric Co.
2. Newspaper Advertising Supporting War Effort—Public Service Co. of Oklahoma.
3. Nutrition Promotion—New Orleans Public Service, Inc.
4. Customer Service Newspaper Advertising—Portland Gas & Coke Co.
5. Campaigns—Duquesne Light Co.
6. Newspaper Advertising (for transportation companies)—New Orleans Public Service, Inc.
7. Employee Magazine — Niagara-Hudson Power Corp.
8. Employee Newspapers — Cincinnati Gas & Electric Co.
9. Bill Enclosures for Residential Customers—Potomac Edison Co.
10. Direct Mail Advertising, Residential—Georgia Power Co.
11. Direct Mail Advertising, Industrial and Commercial—Georgia Power Co.
12. Special Booklets, Pamphlets, etc.—Duquesne Light Co.
13. Window or Inside Display — New Orleans Public Service, Inc.
14. Outdoor Advertising of All Types; Painted Bulletins, Posters, Vehicle Posters, etc.—B. C. Electric Railway Co., Ltd.
15. Radio Advertising—Duquesne Light Co.
16. Annual Reports to Stockholders—Duquesne Light Co.
17. Annual Reports to Employees—Portland General Electric Co.
18. Motion Pictures — Pacific Gas & Electric Co.

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Hope Natural Applies to Construct 22-inch Line

The Federal Power Commission has received an application from the Hope Natural Gas Co., Clarksburg, W. Va., for authority to construct and operate a 22-in. natural gas pipeline to extend from the company's existing facilities in Kanawha county, W. Va., to a point in or near the Hugoton gas field in southwestern Kansas, a distance of approximately 1140 miles. The function of the system is to bring natural gas from the Hugoton field east for delivery to Hope Natural's existing system and other natural gas companies. Hope Natural and its affiliates have 750,000 customers in the Appalachian area.

The application shows the total estimated cost of the project is $50,904,711.

In order to avoid large curtailments to important war industries in the Appalachian area, the West Virginia company hopes to have the pipeline constructed and in operation by the summer of 1944.

With nine compressor stations, aggregating 68,000 hp., the proposed facilities will be capable of delivering at the eastern end 180,000 Mcf. per day, according to the application. At 100% load factor, the new line would bring into the Appalachian area 65,700,000 Mcf. of gas per year and at 90% load factor, 59,130,000 Mcf. per year.

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AGA Publication List

The American Gas Association has issued its 1943 list of publications under the following headings: Accident prevention; accounting section; general; industrial and commercial gas section; natural gas section; proceedings; rates; industrial gas research; residential section; statistical; technical section; testing laboratories; directories; reprints of articles; and bulletins.

Pictured above is a billboard posted by the B. C. Electric Co. at Vancouver, B. C., Canada, with the catchy slogan, "Hitler's Goose Is Cooked With Gas." The B. C. Electric was national winner in classification 14—outdoor advertising—in PUAA 1943 contest.

THE DRYING OF FOODS IN THE HOME

A Summary of Methods Perfected by the Los Angeles Utilities

THE oldest method of food preservation is drying. It is mentioned in history from Biblical times to the present. Whether the drying was done by primitive man with the rays of the sun or is done by the modern housewife in the oven of her gas range, the process remains fundamentally the same. Successful drying depends upon the removal of enough moisture to prevent spoilage. With our newer knowledge of nutrition, we now know that it is essential that a preliminary treatment by steaming or sulfuring be given in order to stop enzyme action and to retain nutritive value in the finished product.

Today there are in use three general methods of removing this moisture. These are defined as follows:

1. Sun drying—the removal of moisture through continued contact with the air under the rays of the sun. This method is used commercially for certain fruits, under favorable climatic conditions.

2. Evaporation — removal of moisture by the *natural circulation* of artificially heated air.

3. Dehydration — removal of moisture by the *forced circulation* of artificially heated air.

Evaporation and Dehydration

The two methods which will be discussed are *evaporation* and *dehydration*. The preparation of the foods before entering the drying process is the same for both methods.

Because *dehydration* requires a forced current of air, some type of dehydrator is necessary. Generally this is some sort of cabinet with interior trays, having a motor-driven fan. The directions for constructing and using home dehydrators may be obtained from the Farm Advisor's Office, 808 N. Spring St., Los Angeles, or from the County Farm Advisor, University of California Extension Service.

Because of the present scarcity of such dehydrating equipment, a method of *evaporation* in the gas range oven has been developed. The oven evaporation method makes it possible to dry vegetables and fruits in the oven, either on the oven racks of the range or on small wooden frames resting on the oven racks. These wooden frames are so simple that "Junior" could make them from an orange box. Because of the great number of gas ranges now used in Southern California and the variations in size and age, it is not possible to describe an exact method which will apply uniformly in every case. In each instance it may be necessary for the housewife to experiment with her own oven.

In either dehydration or evaporation the temperature should not exceed approximately 200° F. during the initial part of the drying period, and should not exceed 150° F. during the last part. Otherwise carmelization and scorching will result.

Although government specifications for commercially dehydrated foods require a moisture content in the finished product of not more than 5%, home-dried foods will probably keep satisfactorily if the moisture content is brought down to approximately 7%—the "brittle dry" stage.

Procedure

The procedure followed in home dehydration and evaporation is relatively simple. For best results, vegetables should not be more than about 4 hours from the garden when they are to be processed, although this is sometimes not possible when using vegetables purchased at the market. Drying is a practical method of preserving fresh-picked victory garden surplus. Vegetables are cleaned according to directions in Table 1 and steam blanched in small lots as soon as prepared. A large quantity of the food should not be prepared and allowed to stand while a portion is being blanched, or it will lose vitamin value, color and flavor. Speed of preparing through the blanching process is imperative. After being steam blanched, however, the vegetable may be loaded on the trays and allowed to stand until all of the trays are ready for the drying unit, without the risk of quick vitamin loss or discoloration.

All types of drying are relatively slow processes which cannot be hurried without danger of scorching the food. However, the processing time will vary with the type of food; light, leafy vegetables such as celery tops (which are excellent in soups) will take a shorter time, while root vegetables such as carrots or beets will take much longer.

TWO BOOKLETS designed to help the housewife in the home drying and home canning of foods were published this month by the Southern California and Southern Counties Gas Companies of Los Angeles. The first of these booklets, "The Home Drying of Foods" (herewith reproduced), represents much original work on the part of the home service departments of the two companies under the direction of MERCEDES BATES and KATHARINE RATHBONE, home service directors, respectively, of Southern California and Southern Counties Gas Companies. The methods described in this booklet are based upon considerable original research conducted by the gas appliance laboratory operated jointly by the two companies. HARRY WARREN was in charge of the research work under the direction of GUY CORFIELD, research engineer. The results of this joint investigation represent the latest progress made in the dehydration of fruits and vegetables. The second booklet, "The Home Canning of Foods," is a review and restatement of methods considered most acceptable in domestic home canning practice.

PREPARING VEGETABLES FOR DRYING

Dehydration or Oven-Evaporation Method

1. Use only fresh, perfect vegetables.
2. Wash and clean them well, but do not let them soak in the water.
3. Steam blanch vegetables before placing on the drying racks. This helps retain vitamin content, sets color, checks ripening, and insures satisfactory restoration after drying.

Alternate Blanching Methods and Equipment

1. *Steam Blanching With Kettle and Wire Rack.*
   a. A kettle with a close-fitting lid should be used, equipped with a wire basket to allow steam to circulate freely. Basket may be lined with cheesecloth so vegetable does not come in contact with wire basket or any exposed galvanized surface of the basket.
   b. Water should be briskly boiling and should not touch vegetables.
   c. Vegetables should be less than 2½ in. deep in the basket.
   d. Vegetables should be steamed according to time on chart. Vegetables should be heated through and relaxed in appearance.
2. *Steam Blanching With Roaster.*
   a. Fill bottom part of roaster pan ¼ full of boiling water.
   b. Place vegetable in center of clean cloth on sink or work table (about 1 lb. or less than 2½ in. deep).

FIG. 1. The first step in the dehydration method of preserving vegetables, as illustrated in this series of pictures taken in the home service experimental station of Southern California Gas Co., Los Angeles, is to prepare the vegetables in much the same manner as for ordinary cooking.

c. Place top half of roaster over vegetables on cloth.

d. Bring opposite ends of cloth over top of roaster lid and tie.

e. Fit top part of roaster (with vegetables suspended on cloth tied securely) over bottom half of roaster containing the boiling water. Steam according to time on chart.

PREPARING FRUIT FOR DRYING

(Dehydration or Oven-Evaporation Method

There are three possible preliminary treatments of fruits, and the proper one should be selected from the "Fruit Preparation Table" (Fig. 2).

Alternate Preliminary Treatments

1. *Sulfuring.* This preserves the color and decreases the loss of vitamins A and C.

a. Sulfuring should be done out of doors.

b. Fruits may be sulfured on wooden trays having wooden slats, or on cheesecloth stretched on wooden frames.

c. Trays should be stacked on top of one another, 1½ to 2 in. apart, so sulfur fumes can circulate.

d. The trays should be covered with an inverted box larger than the stack of trays. A cardboard shipping carton will do.

e. At bottom of inverted box, cut an opening 1x6 in. for ventilation. Close this opening after sulfur has burned completely.

f. Place sulfur in clean, shallow metal container.

g. Bottom tray of fruit should be about 6 in. above sulfur pan if pan is placed *under* trays.

h. Use two teaspoons of sulfur if time is less than three hours (see Table 2).

i. Use three teaspoons of sulfur if time is more than three hours (see Table 2).

j. Ignite sulfur. Place pan under trays or to one side. See illustration. Do not leave match on the sulfur. Keep away from sulfur fumes, and do not inhale them.

2. *Hot Syrup Blanch.* This may be used for apples, apricots, peaches, cherries, pears and figs, if not sulfured. Hot syrup-blanch also retains the color. Fruit which has been syrup-blanched should be protected from insects.

a. Syrups should be prepared preferably from corn syrup diluted with an equal amount of water or from one cup of corn syrup and one cup of cane or beet sugar diluted with three cups of water.

FIG. 2. Blanching in steam to stop enzyme activity is the second step for all vegetables. A simple way to accomplish this is by using a roasting pan. Place the sliced vegetables in a clean white dishcloth or piece of cheesecloth, as shown in the above picture. Then cover them with the lid of the roaster; gather up the four corners of the cloth and tie them together firmly around the handle on top. The product is kept above water as shown in Fig. 3.

b. The hot syrup blanching method is as follows:

(1) Heat syrup to 212° F. or to the simmering point.

(2) Add the prepared fruit.

(3) Hold at the simmering point for 10 min.

(4) Turn off burner. Let stand 10 min. Drain well. Place on paper toweling for a short time.

3. *Lye Solution for Dipping Fruit.* This aids in removal of skin and hastens drying.

FIG. 3. The bottom section of the roaster is filled quarter full of water and the water brought to a full rolling boil. The lid, around which has been wrapped the cloth holding the product, is then placed over the boiling water. Gas should be left on high so that the vegetables will get a proper steaming. Time required for blanching varies with different vegetables.

a. Proportions: Use 1 tablespoon of lye to 1 gal. of cold water. For clingstone peaches, use ¼ lb. of lye to 1 gal. of water.

b. Method of dipping:

(1) Heat solution to boiling.

(2) Dip fruit 5 to 30 sec., according to variety, toughness of skins and maturity of fruit. The fruit should be left long enough to form small cracks in the skin.

(3) Rinse thoroughly in cold water.

(4) Place fruit on trays.

Caution: Do not use utensils made of aluminum, as aluminum dissolves in lye solution. If lye gets on hands, rinse in diluted vinegar.

DEHYDRATION PROCEDURE

(Applicable to Both Vegetables and Fruit)

Method

1. Follow the specific directions of the manufacturer for operation of the dehydration unit used.

(NOTE: There are different types of dehydrators, using different sources of heat. Certain types are to be used over a heater of some kind; other types are to be used over the top burners of the range, and other types to be placed on top of the range oven with the oven door open so as to discharge heat into the dehydrator. In every case it is imperative that the proper instructions for the particular type be followed very carefully.)

2. Spread prepared vegetable or fruit on drying trays not over ½ in. deep. Clean cheesecloth may be spread on tray slats to prevent food from falling through.

FIG. 4. The start of the evaporation process is pictured above. The trays shown are made of wooden frames to which have been nailed double-thickness strips of cheesecloth. A 2-in. block on each corner of the frame separates them from each other. The metal oven rack itself can be used by covering it with cheesecloth. Each tray holds one pound of the product, and the ordinary oven will hold four trays.

3. Bring temperature to 140° F. Hold as constant as possible.

4. Examine food every hour. Stir the food if necessary, and rotate or change the trays to insure completely uniform drying.

5. Use a thermometer if available. It is important to keep the temperature within the limits indicated, and it is difficult to determine the temperature without a thermometer. In any event, watch the product closely to prevent scorching.

6. During the later stages of drying, less heat will be required to maintain the temperature limit. Foods scorch easily when nearly dry, and thus flavor and nutritive value are decreased.

7. When the food product is nearly dry, the content of three or four trays may be combined on one tray for the balance of the process, in order to simplify the stirring.

Dehydration Time and Dryness Test

1. *Vegetables.*

   1. Time varies from 6 to 16 hours according to:

   a. Temperature maintained in dehydration.
   b. Kind of vegetables (root vegetables require longer time than leafy vegetables).
   c. Sizes or thinness of pieces into which vegetable is cut.

   2. Vegetables must be bone dry, or "brittle dry," to have the 7% or less moisture content necessary for safe keeping.

FIG. 5. When the product is thoroughly dehydrated (it will be hard and brittle, breaking when bent) it is stored in tightly covered jars. When ready for table use, re-hydration is accomplished by soaking in water for 30 minutes, a process which will restore much of the original bulk. when cooked, the vegetable will be tasty and retain a large part of its vitamin and mineral content.

Vegetables should snap, like chalk, when broken between fingers. Root vegetables, such as carrots, should be absolutely hard, and should not bend or be leathery.

TABLE 1. VEGETABLE STEAM-BLANCHING TABLE
(For Either Dehydration or Oven Evaporation Method)

Vegetable	*General Directions*	*Cut or Slice*	*Steam-Blanch*
Beans, string	String.	Split lengthwise	15 to 20 min.
Beets	Trim tops; leave crown, roots. Steam whole. Cool. Peel.	⅛ in. thick.	30 to 40 min.
Broccoli	Trim, cut for serving.	Quarter lengthwise.	8 to 10 min.
Cabbage	Quarter and core.	¼ in. wide.	5 to 6 min.
Celery	Separate stalks. Use stalk and leaves.	Dice.	2 to 4 min.
Carrots	Need only to be washed.	⅛ in. thick.	8 to 10 min.
Corn	Husk, steam on cob. Cut from cob or dry on cob after steaming.		10 to 15 min.
Onions	Remove discolored layers.	Slice transversely.	No steaming.
Peas	Shell.		10 min.
Potatoes	Peel. Rinse in cold water after steaming.	⅛ in. thick.	4 to 6 min.
Pumpkin, yellow	Chop into 1-in. strips. Peel. Remove fiber and seeds.	⅛ in. thick	Until tender.
Spinach and other greens	Tender leaves only. Large leaves, cut several times.	Cut crosswise. ¼ in. wide.	4 min.
Squash, banana	Peel.	¼ in. thick.	6 min.
Squash, Hubbard	Chop into 1-in. strips. Peel. Remove fiber and seeds.	⅛ in. thick	Until tender.
Squash, zucchini or summer	Trim.	¼ in. thick.	6 min.
Tomatoes for stewing	Dip in boiling water. Peel. For better vitamin C retention, sulfur 20 to 30 min. before drying.	Quarters or eighths.	No steaming.
Powdered vegetables	Powder after drying by grinding.		

2. *Fruits.*

1. Time varies from 6 to 24 hours according to:

a. Temperature maintained in dehydration.

b. Kind of fruit.

c. Size of pieces.

2. Fruit should be leathery but not hard. The sugar content of fruit will prevent spoilage even though the fruit is not brittle dry.

OVEN EVAPORATION PROCEDURE

Oven evaporation is a practical drying process for home use, since it makes use of equipment already available in every home. Fruits and vegetables may be dried by placing them in the oven of the gas range, and the entire process requires relatively little watching and a minimum of fuel cost. Of course, smaller batches are dried than in a fan type of dehydrator, and a somewhat longer time is necessary for each batch. The prepared food is loaded on two drying frames or trays for placement in the oven compartment. For convenience in handling, it is suggested that these two trays be made of light wooden frames covered with cheesecloth. The length and width of these frames should be about 1½ in. less than the regular oven racks, to allow adequate circulation of heat. Any thin cloth, such as cheesecloth, netting or muslin may be stretched and tacked on the frames to support the food; it is better if this material is of reasonably coarse mesh (see Fig. 7).

Simple as these frames are to make, if such carpentry is not convenient, the cloth may be stretched directly on the two oven racks and pinned in place with toothpicks. If the latter method is used, be certain that the cloth covers only the central portion of the oven rack, and is not extended to within an inch or so of the extreme edge. Otherwise scorching may occur (see Fig. 8).

The oven evaporation method is applicable to ranges with and without oven thermostats. While no fan is required to circulate the heat, the oven door must be propped open about 3 or 4 in. to aid circulation. Also, this is necessary in thermostat-controlled ovens because the thermostats are designed for normal cooking temperatures which are much higher than the very low temperature required for food drying.

FIG. 6. Typical sulfuring equipment.

Two Methods of Evaporation: If it is possible to obtain one, a suitable thermometer should by all means be used, although it is not absolutely necessary with a thermostatically-controlled range using Method I, as described later herein. A thermometer will facilitate keeping the temperature inside the oven within the low limits required. Be sure that the thermometer used has a range of temperatures up to at least 250° F. To be most easily read, it should be placed at the front of the upper drying frame. If the range has no thermostatic control, or if Method II, as described later herein, is used with a range having a thermostat, a thermometer will be needed for the entire drying period.

Two oven evaporation methods will be described. Method I has the advantage of shortening the drying time to about 12 or 14 hours (see the table of drying times under Method I), but starts the drying process at a high temperature and steps the temperature down at intervals, thus requiring more attention. Method II requires a longer time, but only one temperature is used throughout and less attention therefore is required.

In both methods, the racks or trays should be placed in the oven compartment so that the upper tray is approximately 4 in. from the oven top and the lower tray is approximately 3 to 4 in. below the upper tray.

Quantity Equivalents: The vegetables to be dried should be steam blanched according to the general directions and the quantity divided evenly between the two drying frames. The approximate quantities of representative vegetables which constitute a drying load are as follows:

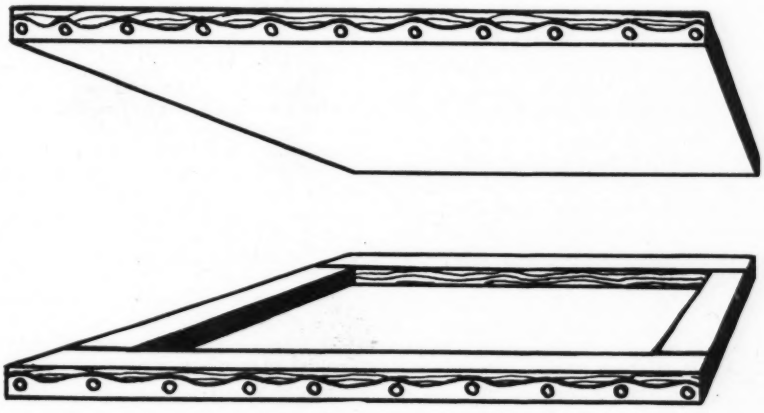


FIG. 7. Sketch showing method of fastening cheesecloth on wooden frames.

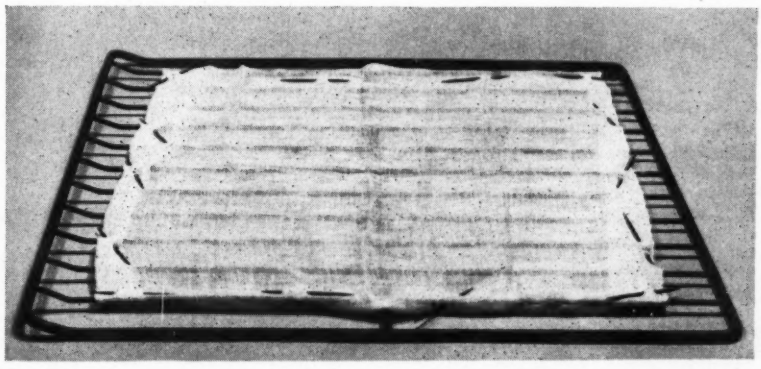


FIG. 8. Picture of cheesecloth in place on oven rack.

	Weight	*Volume*	
Cabbage	4 lb.	5 qts.	20 cups
Carrots	5 lb.	4 qts.	16 cups
Peas	4 lb.	3¼ qts.	13 cups
String beans	4 lb.	4 qts.	16 cups

NOTE: Not less than a full loading should be used in "Oven Evaporation Method I," as otherwise the temperature in the oven will go above the scorching point.

Detailed Procedure for Oven Evaporation

Method I: This is written to be applicable to a thermostatically-controlled range oven. For ranges without oven thermostats, the oven burner should be adjusted manually to give the temperature indicated, using a thermometer placed near the front of the top tray.

1. Beginning of process.
   a. Place drying frames loaded with prepared food in proper position in oven.
   b. Set thermostat at 250° F. (Position I in Fig. 2).
   c. Prop oven door open so that space between front of range and top of oven door measures 4 in.
2. End of first hour:
   a. Interchange and reverse trays.
   b. Stir food.
3. End of second hour:
   a. Interchange and reverse trays.
   b. Stir food.
   c. Set thermostat at 200° F. (Position II in Fig. 2).
   d. Leave oven door open 4 in.
   e. If available, place the thermometer on upper drying tray. The temperature indicated on the thermometer at this point should range from approximately 200° F. to 210° F.
4. End of fourth hour:
   a. Interchange and reverse trays.
   b. Stir food.
5. End of sixth hour:
   a. Interchange and reverse trays.
   b. Stir food.
   c. Set thermostat at the minimum flame —a tiny bead flame. (Position III in Fig. 2.)
   d. Leave oven door open 4 in.
   e. Temperature registered by thermometer should be approximately 150° F. to 160° F.
6. End of tenth hour:
   a. Open oven door completely and leave open for the balance of the drying. This lowers temperature for the balance of the drying period when food is most likely to scorch.
   b. From this time until completion of the drying, the temperature should not exceed 150° F.

Method II: This is written to be applicable to a thermostatically-controlled range oven. For ranges without oven thermostat, the oven burner should be adjusted manually to give the temperatures indicated, using a thermometer placed near the front of the top tray.

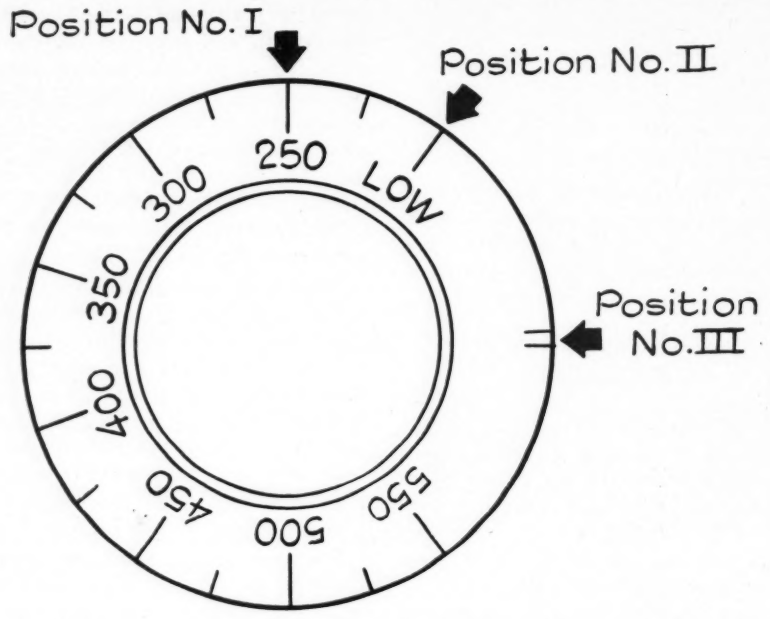


FIG. 9. Although oven control dials for gas ranges differ on different models, the above diagram shows most of the markings used in the dehydration process.

HOW TO SET THERMOSTAT DIAL FOR PROPER DRYING TEMPERATURES
Oven Evaporation Method I

1. Position I. 250° F. is indicated on all thermostat dials. However, a few of the early models have stops which will not allow the dial to be turned to a lower temperature. If your range has a thermostat of this last mentioned type, it will be necessary for Positions II and III first to set the thermostat at 300° F. and then to turn the oven burner to a small flame with the oven valve handle, so as to maintain the temperatures shown in the foregoing detailed procedure of Method I under Items 3c and 5c.

2. Position II. On some thermostat dials 200° F. is marked "Low," or sometimes indicated only by a line. A few dials do not even have a line at this setting. When following the detailed procedure for Method I under Item 3c, turn the thermostat dial so that the pointer is the same distance below the 250° F. marking, as the 300° F. marking is above the 250° F. marking.

3. Position III. This position is indicated on the thermostat dial by several short lines, and there are sometimes additional markings such as "cc" and "70." Some thermostats have a stop at the 200° F. Position II, which will not allow the dial to be turned to Position III. If your range has a thermostat of this type it will be necessary to set the thermostat at 300° F. and then turn the oven burner manually to a very small bead flame with the oven valve handle, so as to maintain the temperatures shown in the detailed procedure for Method I under Item 5c.

1. Beginning of process:
   a. Preheat the oven for about 10 minutes with the oven door closed, with the thermostat set at about 250° F.
   b. Place drying frames loaded with prepared food in proper position in oven.
   c. Close the oven door and heat for about 10 minutes more at the 250° F. temperature setting.
   d. Turn thermostat control to lowest setting (stop point). This should give a minimum flame on the oven burner—a tiny bead flame.
   e. Place thermometer on top tray near front. The temperature for the entire balance of the drying process should not go above 150° F., and should be kept above 120° F.
   f. Prop oven door open so that space between front of range and top of oven door measures 4 in.
2. End of third hour:
   a. Interchange and reverse trays.
   b. Stir food.
3. End of sixth hour:
   a. Interchange and reverse trays.
   b. Stir food.
4. Balance of drying process:
   a. Keep the temperature under 150° F.; vary the width opening of the propped oven door sufficiently to keep the temperature at the desired point.
   b. If the range is to be left unattended, as overnight, the oven door should be left open completely to avoid the temperature rising above 150° F.
   c. Continue the drying process until the foods are thoroughly dry, according to the tests indicated previously.

Approximate Drying Time

NOTE: There will be some variations in the time required for complete drying, according to the model of range used, the temperature variations, the weather conditions, etc. The times indicated are average, and in any case

TABLE 2. FRUIT PREPARATION TABLE

(For Either Dehydration or Oven Evaporation Method)

Fruit	*Preparation of Fruit*	*Preliminary Treatment*	*Sulfuring Time*
Apples	Peel. Slice ⅛ in. thick or quarter and core.	Sulfur or syrup blanch.	1 hr.
Berries (except strawberries)	Pick over. Wash.	Steam ½ to 1 min.	
Cherries	Do not dip pitted cherries in lye solution. Unpitted cherries may be dipped in lye solution for 15 sec. Rinse in cold water.	Dry, or syrup blanch and dry.	
Cherries, white		May be sulfured.	10-15 min.
Figs	a. Small or partly dried may be dried whole. b. Large figs are cut in half.	a. Without blanching. b. Steam 20 min. or syrup blanch.	
Figs, Kadota		Sulfur.	1 hr.
Grapes*		Dip in diluted lye solution to hasten drying. Rinse.	
Large stone fruits Apricots Nectarines Peaches Plums, large Prunes, large	Peel and slice, or cut in half and pit. (Fruit sliced or quartered will dry faster than fruit cut in half.)	Sulfur or syrup blanch. If fruit is firm, it may be steam blanched for 5 to 20 min., depending on the size of fruit. For best vitamin C retention, steam blanch and sulfur.	1 hr., sliced 3 hrs., halved 1 hr., sliced 3 hrs., halved 1 hr., sliced 2 hrs., quartered 2 hrs., halved 2 hrs., halved
Pears	Peel. Slice ⅛ in. thick or quarter and core.	Sulfur or syrup blanch.	1 hr., sliced
Plums, small Prunes, small		Dip in diluted lye solution to hasten drying. Rinse.	2 hrs., halved

*Use only Thompson seedless or other seedless varieties of grapes.

the drying process should be continued until the food is thoroughly dried according to the tests previously indicated.

Vegetable	*Oven Evaporation Method I Hours*	*Oven Evaporation Method II Hours*
Beets	14-16	20-24
Cabbage	12	16-20
Carrots	14	20-24
Greens	12	16-20
Peas	12	16-20
String beans	12	16-20

NOTE: Time required for other vegetables can be determined by comparison with the vegetables indicated in the above table, or by "cutting and trying."

Packaging and Storing

1. Pack and *seal* immediately when drying process is completed.
2. Store in small portions. Spoilage may occur if large container is opened and contents not used within a short period of time.
3. Pack in sterilized, dry containers with well-fitting lids. Dip cover in paraffin to seal. Canning jars with self-sealing lids may be used.
4. Store in cool, dark place.
5. Do not pack leafy vegetables tight enough to crush.
6. Do not keep packaged fruits and vegetables for more than a year.

Restoring and Cooking

1. Vegetables.
   a. Cover root, stem and seed vegetables with cold water. Soak ½ to 2 hours. Cook until tender in water in which vegetable has been soaked. Peas may require soaking overnight.
   b. Drop greens in boiling water to cover and cook until tender.
   c. Alternate method: Drop any vegetable in boiling water to cover and simmer until tender. This will necessitate much longer cooking period.
2. Fruits.
   a. Partially cover with water.
   b. Soaking period may or may not be necessary.
   c. Simmer in water used for soaking until tender.

■ ■

New 26-in. Pipeline Operative Offices Opened

Offices have been opened at Ponca City, Okla., for construction of the 240-mile, 26-in. natural gas pipeline from the Hugoton field near Guymon, Okla., to Blackwell, Okla. The Cities Service Transportation & Chemical Co., a subsidiary of the Cities Service Co., will direct the construction.

Purchase of right-of-way has been started and actual construction is expected to begin in September. The A. O. Smith Corp., which will furnish the pipe, is scheduled to deliver 15,000 tons in September, 22,000 to 75,000 tons in October, and 46,000 tons in November. The new line will deliver up to 240,000,000 cu. ft. of natural gas daily.

New 383-Mile Oil Line To Be Built in October

Construction of a 383-mile, 16-in. pipeline from Sundown, Texas, to Drumright, Okla., having an initial capacity of 54,000 bbl. of crude oil daily was approved June 4 by the War Production Board upon the recommendation of Petroleum Administrator for War Harold L. Ickes.

Administrator Ickes said that materials for the line, which will be built and operated by the Stanolind Pipeline Co., will be made available from PAW's controlled materials allotment. Construction is expected to begin early in October, 1943, and should be in operation some time in March, 1944, the administrator added, provided materials and workmen are available on schedule.

Some 44,600 tons of steel and $7,000,000 will be required to build the new line.

The pipeline will serve to provide Middle Western refineries with additional supplies of West Texas crude oil.

■ ■

San Diego Gas Co. Customers Read Their Own Meters

After a trial had proved 99% of its customers honest, the San Diego Gas & Electric Co., San Diego, Calif., has extended to 2300 more consumers the right to read their own meters and make out their own bills.

A war-time shortage of meter readers necessitated the company inaugurating the self-billing system in the Julian area, 60 miles east of San Diego. W. D. Chambers, company auditor, said the system would now be installed in 10 other zones.

Utility-Manufacturer Cooperation Keynotes AGAEM Meeting

By ELLIOTT TAYLOR
Washington Editor

COOPERATION with the public utilities during the war period to the end that post-war plans and post-war products may be ready for the great market anticipated was the predominant note of the annual meeting of the Association of Gas Appliance and Equipment Manufacturers, held at the Waldorf-Astoria Hotel, New York City, June 29.

The entire slate of officers of the association was re-elected: Col. W. F. Rockwell, president; Lyle Harvey, first vice president; D. P. O'Keefe, second vice president; and John Van Norden, treasurer. In accepting the action of the meeting in thus re-electing him, President Rockwell spoke for his entire official family in saying that while he would have preferred to pass the responsibility on to another, he felt it his duty to remain at his post if the membership insisted, in view of the fact that a complete reorganization of the association had just been completed.

Post-war planning, tied in closely with the subject of the type and manner of research to be undertaken by manufacturers and by the AGA Laboratories, provoked lively and opinionated discussion during the general session in the morning and at the scheduled section meetings that were held throughout the afternoon and early evening.

In a nutshell it is the contention of some of the utilities, as represented by the AGA, that there is essential research of applied nature on domestic gas appliances that could and should be undertaken by the AGA Testing Laboratories at Cleveland. Since the 1936 resolution of the joint committee on laboratory policies, limited the research activities of the laboratories to "problems . . . of a fundamental nature," it was felt that a new understanding with the manufacturers of gas appliances was necessary before any applied research problems could be undertaken.

The prevailing feeling among AGAEM members, as expressed in meeting, at section sessions and by the board of directors, is that as a war-time measure some work of this nature might profitably be undertaken. No carte blanc, however, was given the laboratories to depart from the 1936 resolution except to the extent that a committee will be formed to review each proposed project and make recommendations as to whether it could or should be undertaken.

The manufacturers' side of the question was handled by Frank H. Adams, past president of the AGAEM; and speaking for the utilities and the laboratory were C. E. Bennett, Pittsburgh; George E. Whitwell, Philadelphia, and Hall M. Henry, Cambridge, Mass.

Other speakers in the general session included Galen Van Meter, regional manager of the committee on economic development. The committee is a privately endowed group which is attempting to set up an over-all study of America's post-war industrial plant by regions, in an attempt to encourage local planning that will tie in with a national plan for orderly transition from war-time to peace-time production. The No. 1 problem of peace, in the opinion of the speaker, will be to eliminate mass unemployment, which can only be done by planning and by striving to "build the best possible products at the lowest possible prices."

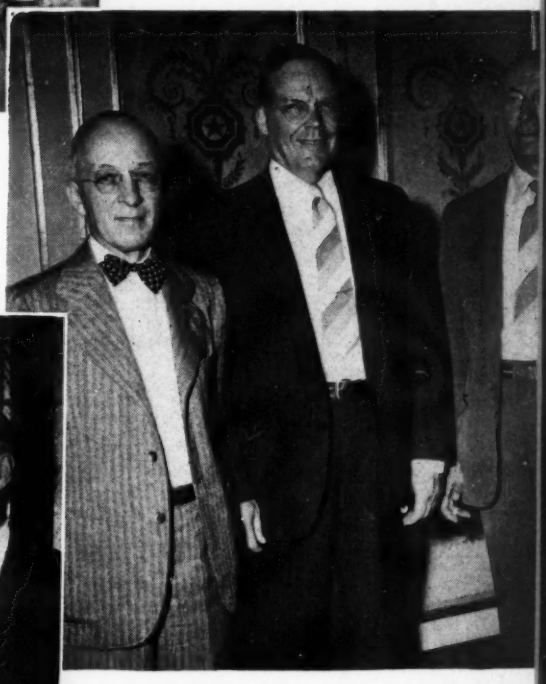
Arthur P. Hirose, director of promotion and market research for McCall Corp., New York publishers, advised the industry on "Post-war Marketing of Gas Appliances." Unless the gas appliance industry sets itself up to do a volume of advertising and promotion at least comparable to that of the electrical competition, Mr. Hirose sees gas, for domestic cooking in particular, fighting a losing battle in the coming struggle for the kitchen load. He advised the stove manufacturers in closing that there are too many of them in business for the amount of annual volume in ranges that the country can absorb under normal conditions. His solution—mergers. Excerpts from Mr. Hirose's paper appear on page 30.

An outgrowth of the Post-war Planning Committee session was a tentative endorsement of the publicity plan that

AGAEM President **W. F. Rockwell,** president, Pittsburgh Equitable Meter Co., Pittsburgh, Pa., and **H. Leigh Whitelaw,** managing director, AGAEM, New York.

Delegates To AGAEM Annual Meeting in New York

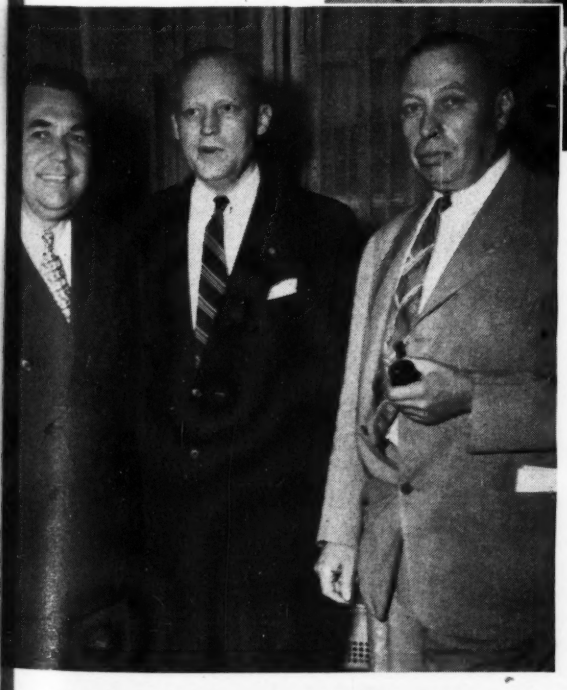
At the speaker's table during the AGAEM general session: **Frank Adams,** vice president, Surface Combustion Co., Toledo, Ohio; **George Richards,** AGAEM; **Lyle Harvey,** Bryant Heater Co., Cleveland, Ohio; **W. F. Rockwell,** president, Pittsburgh Equitable Meter Co., Pittsburgh, Pa.; and **John Van Norden,** secretary, American Meter Co., New York.



ABOVE: **E. C. Adams,** president, Adams Bros. Mfg. Co., Pittsburgh, Pa.; **Frank H. Adams,** vice president and general manager, Surface Combustion Co., Toledo, Ohio; and **Leonard Macomber,** Washington representative, AGAEM, Washington, D. C.

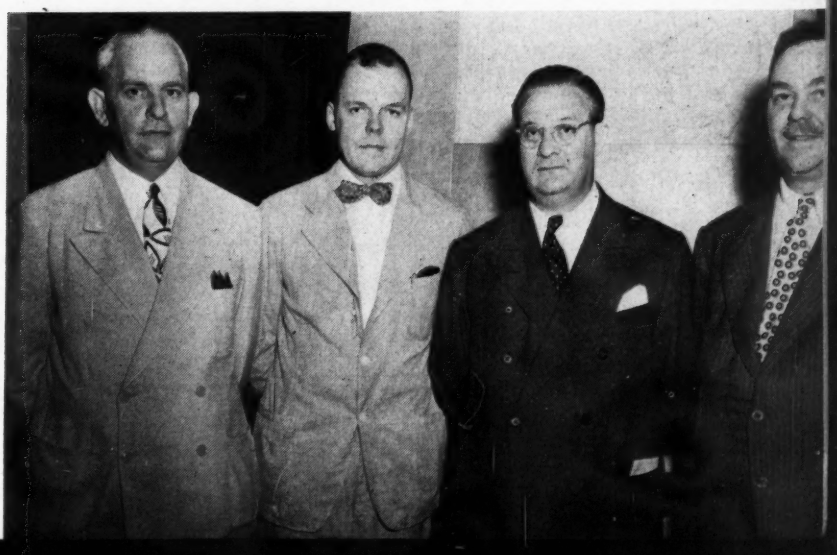
AT RIGHT:

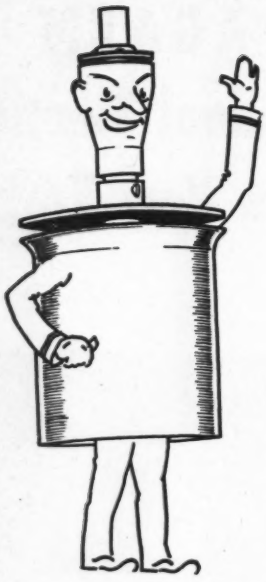
Hall M. Henry, assistant to the president, New England Gas & Electric Association, Cambridge, Mass.; **H. J. Reiff,** W. J. Schoenberger Co., Cleveland, Ohio; and **George Richards,** AGAEM counsel.



ABOVE: **Frank J. Hoenigman,** executive vice president, Cribben & Sexton Stove Co., Chicago; **John Van Norden,** secretary, American Meter Co., New York; and **Albert M. Kahn,** vice president and secretary, Estate Stove Co., Hamilton, Ohio.

J. H. Geibel, E. F. Griffiths Co., Philadelphia; **A. M. Brooks,** president, Chaplin-Fulton Mfg. Co., Pittsburgh, Pa.; **F. L. Fairchild,** president, Sprague Meter Co., Bridgeport, Conn.; and **John A. Robertshaw,** president, Robertshaw Thermostat Co., Youngwood, Pa.





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Tulsa, Oklahoma

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is being worked up by the National Warm Air Furnace Association under the Indoor Climate Institute. The objective of the scheme is to educate the public in better heating through promotions similar to the Better Light, Better Sight campaign, and the various kitchen planning promotions that have been conducted in the past.

Paul Zimmerman, sales manager of the Airtemp Division of the Chrysler Corp., presented the subject to the committee.

Favorably passed by the board of directors and to be submitted to the membership at large for vote were two propositions: (1) that the chairman of the CP gas range group become automatically a member of the board of directors, and (2) that a new accounting and credit section be formed, the chairman of which would also be a member of the board of the association.

■ ■

Educational Course to Be Conducted by SCMA

TO serve the purpose of an introductory course to metering for new men and a chance to brush up on the technique of metering for older men in the industry, the Southern California Meter Association has planned a series of 10 lecture meetings. The subjects will cover the application and use of meters and will be presented at the association's regular meeting on the third Thursday of each month.

The series of programs will include:

1. Gas laws, with their application to orifice meters, and installation of orifice meters.
2. Calculation of orifice meter coefficients with particular emphasis on the gravity, temperature and deviation factors. The application of coefficients to water, steam and oil.
3. Chart reading; by the sight, the planimeter, and the integrator methods.
4. Maintenance of orifice meters (plates, tubes, etc.).
5. Maintenance of orifice meters (Wescott, Foxboro, and Emco gages).
6. Maintenance of orifice meters (bellows and parabolic bell-type gages and miscellaneous).
7. Regulators, selection, installation, operation and maintenance.
8. Controllers (flow, pressure and temperature) and telemetering.
9. Calorimetry and gravitometry (selection of samples and methods and technique of testing).
10. Positive displacement meters (selection, maintenance and proving).

■ ■

R. E. Fisher Heads PCGA Nominating Committee

F. M. Banks, president of the Pacific Coast Gas Association, has named the following as members of the nominating committee of the association: R. E. Fisher, Pacific Gas & Electric Co., chairman; W. R. Smith, Continental Water Heater Co., Los Angeles; C. Roy Ohnimus, Hammer-Bray Co., Oakland; H. L. Farrar, Coast Counties Gas & Electric Co., Santa Cruz; and Norman R. McKee, Southern Counties Gas Co., Los Angeles. Election of officers for the coming year will be held on Sept. 22 at the 50th annual meeting of the association in Los Angeles.

Oil Compact Holds Summer Meeting

CONTINUED progress in collecting information on underground natural gas storage projects was reported by the research and coordinating committee of the Interstate Oil Compact Commission at its summer meeting in Pittsburgh, Pa., June 26.

Eleven of the 13 states in the compact were represented. Up to the time of the meeting information had been accumulated on natural gas storage projects in California, Texas, Pennsylvania, New Mexico, Ohio and Kentucky, Dan O. Howard, chairman of the committee, reported. E. G. Dahlgren, technical secretary of the committee, says that it is hoped to complete the report for the next quarterly meeting, which will be held at Santa Fe, N. M., during September. Exact date of this meeting has not yet been set.

With regard to its program for cooperation with the petroleum and natural gas divisions of the U. S. Bureau of Mines, the committee reported that 51 samples of crude oil were collected from fields in Arkansas, Illinois, Louisiana, Michigan, New Mexico, Oklahoma, and Texas. Since the last meeting of the committee, 33 Hempel analyses were furnished by the Illinois Geological Survey of the Bureau of Mines.

Two resolutions were adopted by the Interstate Compact Commission at its Pittsburgh meeting. One called the attention of Congress and price control authorities to "an impending shortage of oil" and asserted that the "petroleum conservation program is in serious jeopardy through lack of incentive for wildcat drilling." As a time-tested remedy, the resolution urged an immediate and adequate increase in the price of petroleum and its products.

The other resolution recommended that the several state regulatory bodies determine, as nearly as possible, "the optimum or the maximum efficient rate of production of the oil fields located within their respective states, and that such rate of production be not exceeded, except as temporary military and essential civilian requirements shall demand; that every effort be made to supply necessary requirements over and above the required optimum or maximum efficient rate of production of the several states from such other sources as may be available, without waste, to the end that the oil reserves of this nation shall not be depleted through wasteful production practices."

Governor Edward Martin of Pennsylvania delivered the welcoming address and attached his signature for renewal of the compact by his state for another four years.

Robert E. Allen, assistant deputy petroleum administrator for war, pointed out the critical motor fuel situation and estimated that the available supplies of gasoline this third quarter for the country as a whole will be 94% of minimum essential requirements.

Charles H. Jones, director of Ohio's department of commerce, appeared as the representative of Governor Bricker at the meeting, the first in which Ohio was represented as a member of the compact.

Governor Andrew Shoeppel of Kansas presided at the meeting. Ray O. Weems, vice chairman of the Oklahoma Corporation Commission, represented Oklahoma's Governor Kerr. Earl Foster, Oklahoma City, chairman of the legal committee, presented the report of that body.

Representing headquarters of the Compact Commission were Charles Orr, secretary; E. G. Dahlgren, technical secretary of the research and coordinating committee; J. B. Wilson and Ted Canute of the staff.

Secretary Charles Orr is working on the script for the educational film on production, conservation and uses of oil and hopes that the moving pictures to synchronize with the script will be ready within a few weeks. Later a film will be worked out devoted to production, uses and conservation of natural gas, Secretary Orr stated.

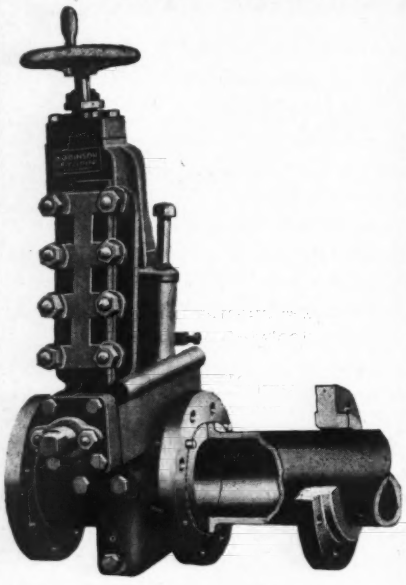
■ ■

PCGA Gas Development Committee Appointed

A COMMITTEE, the purpose of which is to coordinate the suggestions and plans of various organizations affiliated with the gas industry so that they may be most advantageously used in the development of the Pacific Coast gas industry, has been appointed by President F. M. Banks of the Pacific Coast Gas Association.

This committee will undertake studies on problems affecting Pacific Coast business in an effort to determine how that branch of the industry can best serve the war effort and be prepared for whatever may come with peace.

Serving on the committee with Mr. Masser are: Edward H. Coe, president and general manager, Central Arizona Light & Power Co.; H. L. Farrar, president, Coast Counties Gas & Electric Co.; R. G. Barnett, vice president and general manager, Portland Gas & Coke Co.; J. F. Pollard, president and general manager, Seattle Gas Co.; E. L. Payne, vice president and general manager, Payne Furnace & Supply Co.; Harry A. Strong, executive vice president, Servel, Inc.; W. G. Vincent, vice president and executive engineer, Pacific Gas & Electric Co.; and A. E. Holloway, vice president in charge of sales, San Diego Gas & Electric Co.



ROBINSON ORIFICE FITTINGS

and bored meter tubes from 2" to 24" are playing their part in the new Butadiene plant of the Southern California Gas Company.

Robinson Orifice Fittings were selected for their economy, accuracy and ease of operation in the measurement of gases, liquids and steam.

Robinson Orifice Fittings are playing a very essential role in other war plants throughout the nation, such as alkylation, hi-octane, synthetic rubber, recycling, and absorption plants, also airport fueling systems, magnesium plants, oil and gas pipelines and many industrial plants from Alaska to Mexico.

Robinson also produces meter leveling saddles, bored and calibrated meter runs, meter houses, welding neck orifice flanges and orifice plates. Your measurement problems will be simplified by using ROBINSON EQUIPMENT.

ROBINSON ORIFICE FITTING CO.

1435 Santa Fe Ave. Los Angeles, Calif.

WESTCOTT & GREIS, INC.

Agents at Tulsa, Okla.; Houston, Dallas, Amarillo, Texas, and Shreveport, La.

NEGA Accountants Hold Afternoon Meeting

An afternoon meeting of the accounting division of the New England Gas Association was held at the University Club, Boston, on June 23.

The luncheon was followed by two addresses and general and customer discussion groups, and closed at 5 p. m. to offset evening transportation difficulties.

Edward J. McDevitt, partner, Patterson, Teele & Dennis, Boston, was the first speaker and had chosen "Internal Audit and Control From the Viewpoint of the Independent Public Accountant" as the topic of his address. "Customer Accounting Problems Today" were discussed by L. A. Mayo, supervisor of local accountants, The Connecticut Light & Power Co.

Special feature of the meeting was a panel discussion by three tax experts on the new pay-as-you-go tax.

The general accounting group sub-meeting was presided over by E. F. Embree, New Haven, and H. G. Massey, Manchester. The customer accounting group had as chairmen J. C. Stewart of Pawtucket and J. H. Allison of Cambridge.

■ ■

SCMA Plans Interesting Meeting for July 15

The program committee of the Southern California Meter Association has been especially fortunate in preparing the agenda for the next meeting scheduled for July 15 at the Rio Hondo Club.

The following speakers will present addresses: Ed Balby, gas engineer, natural gas division, Richfield Oil Co., will present a treatise on "Fundamental Gas Laws and Their Application to Metering"; J. B. Taylor, assistant manager, gas department, Signal Oil & Gas Co., has as his subject, "The Fundamental Problems of Orifice Meter Measurement." Following these presentations a general discussion will ensue.

W. W. Robinson of Texas Co. will give an invitational on "War Gases — The Abstract and Concrete of Gas in Civilian Defense."

The new offices of the association who were elected at the June 17 meeting will officially take office on July 15. These officers include: J. T. Cortelyou, Southern California Gas Co., president; R. T. Furlong, Texas Co., vice president; Lee Cheever, Southern Counties Gas Co., treasurer; G. S. Duncan, General Petroleum Corp., secretary; Frank J. Renner, American Recording Chart Co., program chairman; Arthur Holman, Pittsburgh Equitable Meter Co., entertainment committee chairman; C. L. Hutchings, Associated Oil Co., by-laws chairman; Edgar Balby, Richfield Oil Co., standards committee; Mark K. McIlvaine, C. C. M. O. Co., membership chairman; W. J. Kennedy, Southern California Gas Co., publicity chairman; and W. L. Cowan, Union Oil Co., past president.

■ ■

CNGA Holds Regular Meeting in Downey, July 1

A dinner meeting of the California Natural Gasoline Association was held on July 1 at the Rio Hondo Club, Downey, Calif.

Two papers were presented during the evening by R. S. Ridgway, mechanical engineer, natural gasoline department, Standard Oil Co. of California, and T. G. A. Cook, plant foreman, The Texas Co. Mr. Ridgway spoke on "Pop Safety Valves in Compressor Service," and Mr. Cook on "Some Means of Reducing the Demand for Critical Materials for Use in Natural Gasoline Plants."

Price Ceiling Established In B. C. on Used Gas Stoves

Complaints on overcharging for second-hand gas stoves have reached the Retail Merchants Association at Vancouver, B. C., and it has issued a reminder to dealers of the official price ceiling on this commodity.

The dealer is allowed to charge:

1. The retail price he charged for the same type and style during the basic period, or

2. If he did not handle a stove of the same model in the same guaranteed condition during the basic period, he cannot sell it now for more than 60% of its retail price when new.

Every dealer is required, according to the retailers' association, to furnish the buyer of a used gas stove with a written guarantee that it is in good working order and that he will repair it free of charge if it proves defective within 90 days of delivery.

■ ■

AGA Advertising Copy Wins Further Recognition

Further honor has come to the American Gas Association's Committee on National Advertising with the selection by Young & Rubicam, Inc., New York, of one of its advertisements, "What Else Can I Do to Help," for inclusion in a composite advertisement made of four outstanding pieces of copy. The composite advertisement is designed to illustrate helpful war-time advertising and is being released for the purpose of stimulating the preparation and publication of many more advertisements beneficial to the war effort.

Advertisement No. 1 in the layout was prepared by J. Walter Thompson, New York, for Pan American Airways; No. 2 by McCann-Erickson, New York, for the American Gas Association; No. 3 by Leo Burnett, Chicago, for the American Meat Institute; and No. 4 by Young & Rubicam, Inc., New York, for the Westinghouse Electric & Manufacturing Co.

■ ■

FPC Approves Panhandle's Reduced Rates to Ohio Gas

A schedule of reduced rates for natural gas sold by Panhandle Eastern Pipe Line Co., Kansas City, Mo., to the Ohio Fuel Gas Co., Columbus, Ohio, for resale was approved by the Federal Power Commission on July 2. The order, which also terminates the proceedings arising from protests filed by Ohio Fuel alleging that the rates originally proposed by the Panhandle company were discriminatory and unlawful, will go into effect as of Aug 1, 1942.

The revised schedule reduces the rates for gas to be delivered for resale through two interconnections between the companies' pipelines from 2.5¢ per therm to 1.6¢ per therm for gas delivered prior to May 1, 1943, and to 1.9¢ per therm for gas after that date.

■ ■

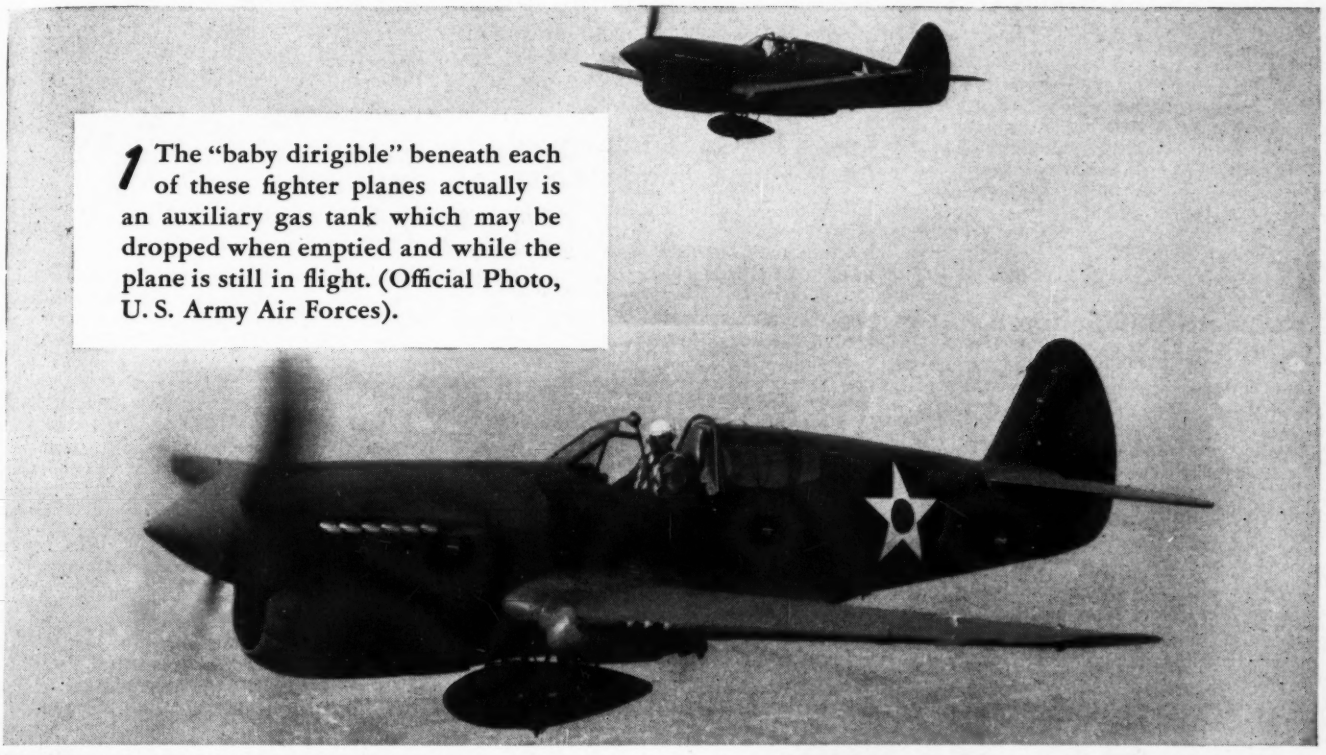
Fire Prevention Data

The United States Office of Civilian Defense has issued a "Fire Guard Fact Sheet" on the organization of a fireguard force of selected civilians to combat fire caused by enemy action.

The primary duty of this group will be to extinguish small but deadly fire set by incendiary air attack, thus making it possible for the regular firemen and auxiliary firemen to devote their entire efforts to fighting the larger threat of conflagration.

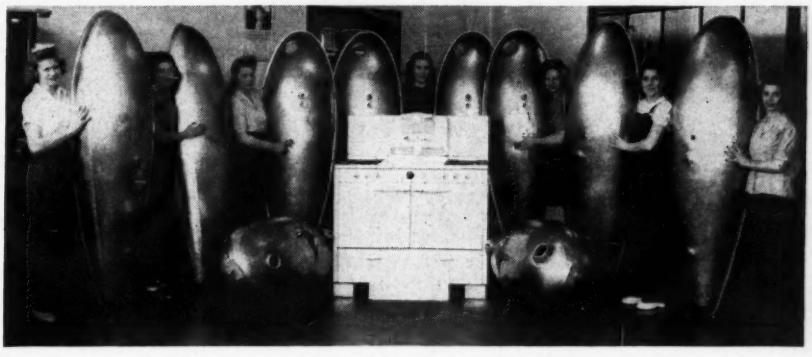
For further information on the formation of this fire guard, communicate with the Editorial Section, Office of Civilian Defense, Washington, D. C.

How Magic Chef Gas Ranges help fighter planes fly farther!



1 The "baby dirigible" beneath each of these fighter planes actually is an auxiliary gas tank which may be dropped when emptied and while the plane is still in flight. (Official Photo, U. S. Army Air Forces).

2 This photo gives you a better idea of the size of these auxiliary gas tanks. Airplane accessories must be strong but light. One tank is an easy load for this attractive American Stove Company production worker to support with one arm.



3 The material once used to make one All-American Magic Chef Gas Range now produces ten auxiliary gasoline tanks, and ten of our fighter planes will fly farther because some good housewife has made a sacrifice.

THE RED WHEEL GAS RANGE WITH THE LIFETIME BURNER GUARANTEE

AMERICAN STOVE COMPANY, 4301 PERKINS AVENUE, CLEVELAND, OHIO

NEW YORK . . . CLEVELAND . . . ATLANTA . . . SEATTLE . . . CHICAGO . . . ST. LOUIS
LOS ANGELES . . . SAN FRANCISCO . . . PHILADELPHIA

Although there will be no new Magic Chef Gas Ranges for homes until after the war, the skill and new techniques required to make military equipment plus years of range-making experience will produce better Magic Chef Gas Ranges when victory comes.

Niagara Hudson Submits Reorganization Plan to SEC

A plan for the reorganization of the Niagara Hudson utility system has been filed with the Securities and Exchange Commission by the Niagara Hudson Power Corp. and its subsidiary companies. The plan will consolidate the principal subsidiary companies into a single operating electric and gas utility concern, eliminate the holding companies of the system and offer to preferred and common stockholders of Niagara Hudson Power Corp. and subsidiaries cash, preferred stock, common stock and securities at the various ratios of exchange. In addition, preferred stockholders of Niagara Hudson Corp. and Buffalo, Niagara & Eastern Power Corp. will receive cash for accrued dividends since 1942.

The proposed reorganization set-up has been approved by the directors of the Niagara Hudson system and application has been made for its approval under the Holding Company Act of 1935.

■ ■

Extension of Oklahoma Gas Supply Reported

The opening or extension of new natural gas fields or zones in Oklahoma is a continuing process. One of the recent zones opened is shallow gas production in the old Citra area in Hughes county. Burke-Greis reconditioned an old well in the area which tested 22,000,000 cu. ft. daily from the Cromwell sand.

The Oklahoma nomenclature committee of the Mid-Continent Oil and Gas Association reviewed a number of other new fields in Oklahoma. These include: The Rheams pool in Pittsburg county, two wells completed; South Stillwater area in Payne county where Thomas N. Berry & Co. opened a well which tested 3,500,000 cu. ft. daily; the Ralston pool in northern Pawnee county, where Aladdin Petroleum Co. brought in a well that produced 2,000,000 cu. ft. per day; the Weleetka district, where Bryan & Moffitt No. 1-A Nuchols tested 4,000,000 cu. ft. per day; the Lula pool, where Stanolind and Amerada No. 1 Cushing Royalty, six miles north of Centrahoma, in Coal county, produced 19,000,000 cu. ft. per day on the first test; Cimarron county area, opened by the Pure Oil Co., No. 1, Cox well was shut in and is 40 miles from the nearest pipeline connection.

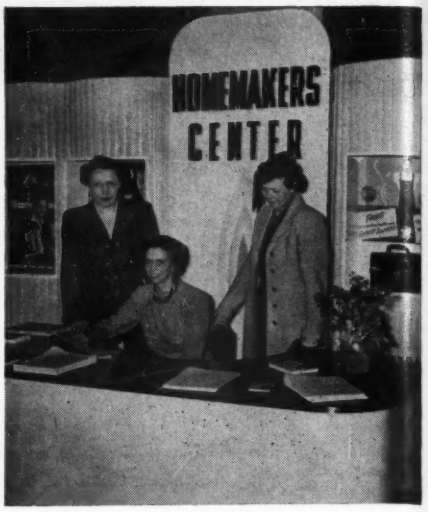
■ ■

Jessie McQueen at Opening Of Portland Food Center

A highlight of the visit in Portland, Ore., by Jessie McQueen, home service counselor for the American Gas Association, was her inspection of the newly enlarged Portland Gas & Coke Co.'s homemakers center which was put into service on the very morning of her arrival.

A luncheon at the University Club was given by Mrs. Rita Calhoun, home service director, Portland Gas & Coke Co., in honor of Miss McQueen. Other guests included Mrs. Ada Mayne, chairman of the Portland Nutrition Council (of which Mrs. Calhoun is also a member); Mrs. Sue Bert of the Red Cross, and the editors of the women's pages of the two daily newspapers.

Problems concerning the home processing of foods and nutrition in general were discussed at the luncheon, with Miss McQueen reporting on a food conservation conference she attended at Cornell University and summarizing information she had gathered on her trip as far as Portland. She was loud in her praise of what had been accomplished in Portland.



Jessie McQueen (right), home service counselor for the American Gas Association, arrived in Portland, Ore., on her recent trip just in time to help initiate Portland Gas & Coke Co.'s newly enlarged homemakers' center. With Mrs. Ada Mayne (left), chairman of the Portland Nutrition Council, she congratulates Rita Calhoun, the utility's home service director and also a member of the council. Information on various food problems has been given to 25,000 persons since Pearl Harbor, Mrs. Calhoun reported in announcing the improved facilities.

Miss McQueen discussed home service with R. G. Barnett, vice president and general manager of Portland Gas & Coke Co., and later joined in a group conference with D. E. Farmer, superintendent of the utilization bureau; Robertson Cook, service engineer; D. S. Kelleway, laboratory engineer; A. O. Leech, commercial manager; and C. W. Steele, residential manager. Experiences and experiments with dehydration of foods were among the topics brought up for discussion.

■ ■

Alabama Gas Co. Aids Drive Against Black Market

In a public-spirited drive against the sale and use of "black market" meats, the Alabama Gas Co., Montgomery, Ala., is devoting space formerly used for institutional promotion to a campaign against the black market.

A series of quarter-page newspaper ads were planned, following judicial uncovering of several black market operations in southern Alabama.

The first such ad was headed with a cartoon showing a leering vulture over carcasses marked "Meat kept from our soldiers," "Meat diverted for a fat profit," etc. Under the title of "Beware of the Black Market," the company advised the public to buy only at legally operated and inspected stores. The copy explained that black market operations have become far larger than the average person realizes, and that they add up to a dangerous problem in serving the military forces and war economy.

As a final touch, Alabama Gas Co. emphasized that gas cookery, with well-controlled temperatures, helps to extract the most good from every pound of meat on the table—with less shrinkage and other loss.

FOR SALE

GAS PLANT EQUIPMENT

One Ingersoll-Rand Centrifugal Gas Booster; **Capacity—500,000 cu. ft. per hour at 6 lbs discharge pressure; 5,000 R.P.M. Direct Connected to a 320 HP Terry Condensing Steam Turbine—140 lbs Steam Pressure, and including one (1) Elliott-Ehrhart Barometric Condenser. This equipment is in excellent condition.**

One Kerr-Murray Gas Storage Holder; **Erected 1895—200,000 cu. ft. capacity—Steel Tank, 2 Lifts. This holder is in very good condition.**

One Steel Tower **—15'-0" dia. x 99'-0" high, with 36" inlet and outlet connections. Complete with spray nozzles, baffles, grids, and one (1) steel tank 6'-0" dia. x 19'-0" high in outlet line. This tower is in very good condition.**

We will be glad to furnish detailed specifications and prices of any of the above pieces of equipment.

MICHIGAN CONSOLIDATED GAS COMPANY
415 CLIFFORD ST., DETROIT 26, MICHIGAN

"306 is too hot, 504 is too cold — NUTS!"

SITUATIONS like this couldn't occur if the building was adequately controlled by a Minneapolis-Honeywell Control System. These systems not only provide exactly the temperatures desired or needed in all parts of the building, but by eliminating waste heat they save fuel — often enough to more than pay for the control system, within a period of two to three years. M-H Control Systems for every requirement are available — for old or new buildings, large or small . . . Minneapolis-Honeywell Regulator Company, 2946 Fourth Avenue S., Minneapolis, Minnesota. Company-owned branches in forty-nine principal cities.

MINNEAPOLIS-HONEYWELL

CONTROL *Systems*

GAS at WAR

Washington Notes

Refrigerators: Problems involved in keeping the domestic mechanical refrigerators in American homes in operation were discussed at a meeting of the Mechanical Household Refrigerator Industry Advisory Committee with War Production Board officials.

The manufacturers said that in general the parts situation is satisfactory, but that manpower shortage is giving considerable difficulty to distributors and dealers in meeting repair demands. They felt that the only solution to the manpower shortage was draft deferment of skilled mechanics and key workers. An OCR representative offered to seek the assistance of the War Manpower Commission in meeting the situation.

Committee members estimated that their 1944 requirement of critical materials for manufacture of repair parts would be at least 50% greater than this year's.

Refrigeration: (Amendment No. 1 to Schedule II to Limitation Order L-126, as amended March 27, 1943, effective June 17, 1943.) Restrictions on the use of steel in specifically named parts of certain sizes of refrigerating equipment were eased by the War Production Board with the issuance of an amended Limitation Order L-126.

The changes brought about by the amendment are confined to Schedule II of the order. The most important provisions:

Permit manufacture of water-cooled condensing units of 2 hp. or less designed to operate at a refrigerant suction temperature below minus 40° F.

Permit the manufacture of 3-hp. air-cooled condensing units, 3-hp. water and air-cooled models and special models operating below 25° F.

Permit the use of carbon steel for condensing unit bases to the extent of 30 lb. per horsepower and an unlimited amount of cast iron.

Remove restrictions on use of steel for fan shrouds.

Refrigeration: (Order No. 555 under Section 14993(b) of the General Maximum Price Regulation, effective June 25, 1943.) A ceiling of 75% of the present list prices for new parts or subassemblies was established by the Office of Price Administration for reconditioned or rebuilt parts of subassemblies for commercial refrigeration equipment when sold by reconditioners.

The action covers only rebuilt or reconditioned subassemblies and parts which were not sold by the manufacturer during March, 1942. Many manufacturers, OPA pointed out, will be compelled to recondition and rebuild certain parts and subassemblies for their own refrigeration equipment because of the tightness in supply of new parts and subassemblies — production of which has been drastically curtailed under War Production Board Limitation orders.

The new ceilings will be under the provisions of the General Maximum Price Regulation.

Steel Tubing: (Amendment 1 to Schedule 3 of Limitation Order L-126, issued June 26, 1943.) The use of seamless steel tubing in the manufacture of finned coil or tube assemblies as part of refrigerating equipment is permitted until Sept. 15, 1943, following the issuance of Schedule 3 of Limitation Order L-126, as amended by the War Production Board.

The seamless tubing may be used by those manufacturers who have to expand the tubing to make the bond between it and the fins.

Previously welded steel tubing had to be used by all manufacturers, but considerable difficulty was encountered in expanding welded steel tubing to join the fins. The present amended order is a temporary expedient until manufacturers can obtain suitable welded steel tubing.

War Housing: (Part 903, Delegations of Authority, Directive No. 25, effective June 26, 1943.) Charges for gas and electricity in new privately financed war housing projects may be added to the maximum rentals now permitted in war housing, according to Directive 25 issued by the War Production Board. The directive does not affect the rental charges of war housing projects already authorized.

War housing projects are those which are part of the national housing agency program, which were built since September, 1941, and whose materials were obtained through WPB. Applications for the materials must stipulate the proposed rental charges, which are subject to the maximum of $50 a month, plus a $3 per room per month maximum for tenant services. Because war housing developments are given only one meter respectively for gas and electricity, these charges are not billed directly to tenants. In proposed projects, in contrast with those already authorized, the charges may be prorated among tenants without regard to the maximum allowances.

Conservation of Cooking Equipment: Operators of cafes in war plants, institutions and hospitals, as well as restaurant owners, are offered a concise guide just released by the Conservation Division of the War Production Board. It outlines the policies that should be followed in selecting food storage, cooking and serving equipment under current WPB rulings, listing the items that are permitted as well as those that are restricted.

The selection of cooking equipment is treated with regard to the fuels to be used and the materials permitted in all types of equipment are specifically indicated.

All restaurant operators, particularly in institutions, who may find it necessary to add or replace equipment will find the manual of definite assistance. Copies may be had on request from the WPB division of information, Conservation Section, 11th and H Sts., N.W., Washington, D. C.

Air Conditioning: The shortage of Freon refrigerant for air conditioning purposes makes it imperative that theaters, office buildings, hotels, restaurants and other service institutions equipped with "comfort cooling systems" take immediate steps to conserve their present supply of the refrigerant, the Service Equipment Division of the War Production Board advised June 23.

A recent amendment to Order M-28 (Chlorinated Hydrocarbon Refrigerants) barred the delivery of Freon refrigerant to any comfort cooling system after June 5. The action was taken to conserve the chemical for essential war industries and for preservation of perishable foods.

This does not mean imminent shutdown of currently operating cooling systems, division officials pointed out. With proper care and maintenance of existing equipment, the refrigerant can be used for several years without deterioration.

Power Boilers: (Limitation Order L-299, effective July 1, 1943.) Conservation of the use of steel in the manufacture of heavy duty steam boilers has been ordered by the War Production Board.

Order L-299 provides that power boilers, except those for locomotive or marine service, may not have a greater metal thickness or quantity of steel

than needed to meet the minimum thickness requirements of the American Society of Mechanical Engineers boiler construction code. Boilers affected are those for a design pressure exceeding 15 psi.

The restrictions do not apply to boilers in process on July 1 or those into which a tube is rolled.

Electric Appliances: (General Limitation Order L-65, as amended, issued June 17, 1943.) A completely revamped General Limitation Order L-65 (electric appliances) has been issued by the War Production Board, providing for the manufacture of several more kinds of electric appliances for preferred orders, and for a limited production of certain kinds of heavy duty electric appliances for commercial civilian use. The amended order also tightens control over production of repair parts through restrictions, limitations, and a trade-in-or-scrap plan.

Since May 31, 1942, and until recently production of all electric appliances had been cut off completely except for certain types to fill military and similar preferred orders. The revised order opens no new production for general civilian use. Its principal general effect is in banning the production of repair parts for luxury electric appliances.

Flat irons, air heaters, and water heaters have been added to the electric appliances that may be produced for preferred orders (Army, Navy, Maritime Commission and War Shipping Administration). Previously the permitted list for preferred orders included only broilers, food choppers, food mixers, food grinders, food servers, food slicers, fry kettles, griddles, hotplates, juicers, ovens, ranges, toasters, urns and vegetable peelers.

Production of the latter group may be resumed by a manufacturer for civilian use, but only of the commercial and heavy duty types and not in excess of 10% per quarter of the number of these units he had produced during 1940. Furthermore, he must not accumulate in his inventory more than 15% of his 1940 production of each item.

This supply is intended to relieve shortages of food-preparation equipment needed in hospitals, war industry cafeterias, and at civilian-operated training schools which serve military personnel.

Furnace Materials: (MPR No. 416, effective July 3.) Basic refractory brick, dead-burned dolomite, dead-burned grain magnesite, and kindred basic refractory products used in the masonry linings of metallurgical and industrial furnaces were placed under a separate price regulation June 28 by the Office of Price Administration. Price levels, which have undergone no change since September and October, 1941, are not altered by the action.

Fans and Blowers: (L-280, as amended June 21, 1943.) No manufacturer or dealer shall accept any order for any fan or blower, or parts thereof, or deliver any such order unless it is rated AA-5 or higher.

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Fat Salvage

The following letter has been received from Wilder Breckenridge, manager, committee of the Glycerine and Associated Industries to Salvage Waste Fats, New York:

"I thought you might be interested to know what response we had to our request to AGA members to display fat salvage posters.

"We wrote to all the companies suggested by you. It was particularly gratifying that your members seemed to take a very personal interest in the whole operation and many of them went into some detail as to just what they proposed to do with the posters with respect to locations, branch offices, etc.

"Please believe we are deeply grateful to you and to your members and hope that you tell them so at the first opportunity."

They Gave Their All

Lieut. **Mervin E. Krohn**, 24, killed in a plane crash near Roswell, N. M. Employee Pacific Gas & Electric Co., San Francisco.

Electrician's Mate First Class **John M. Flatter,** 50, killed in an airplane crash somewhere in the Atlantic Ocean. He was a veteran of World War I. Employee Pacific Gas & Electric Co., San Francisco.

Lieut. **William Charles Kilduff,** 25, of the U. S. Army. After fighting against the Japs from December, 1941, until the fall of Corregidor five months later he was taken prisoner and has died in prison camp in the Philippines. Employee Cincinnati Gas & Electric Co., Cincinnati.

Capt. **Jack McCarty** of the U. S. Army Air Corps was killed in a crash of two flying fortresses in a routine training flight on May 13. Employee El Paso maintenance district, El Paso Natural Gas Co.

Lieut. **Albert Candiello,** 29, member of the 200th Coast Artillery, anti-aircraft, died in a Japanese prison camp in the Philippines. He had fought on Bataan until it fell and then was taken prisoner. Employee Community Public Service Co., Fort Worth, Texas.

William E. Morrow, 31, U. S. Army Air Corps, killed when an army truck in which he was riding overturned in a ditch near Cherokee, Okla. Employee Kansas City Gas Co.

PAO No. 11 Amended

TO facilitate the extremely important program for secondary recovery of crude oil throughout the country, Deputy Petroleum Administrator Ralph K. Davies July 2 issued Supplementary Order No. 6 to Petroleum Administrative Order No. 11 which will permit petroleum operators to acquire and use materials in secondary recovery operations without regard to the restrictions otherwise imposed by PAO No. 11.

The amended order, which supersedes a temporary order which expired on June 30, stresses the importance of secondary recovery operations as a source of an additional supply of crude oil to meet our constantly expanding requirements.

Under the terms of the order, secondary recovery operations involve the injection of air, gas or water into the producing formation for the purpose of increasing or sustaining production therefrom, and include the drilling of production and injection wells. Pressure maintenance, high pressure cycling and salt water disposal are specifically excluded from the definition of secondary recovery.

The authorizations under the amended order extend only to an operator who conducts the specific injection program, or who contributes money, property or service as a participant in a specific secondary recovery program. The authorization for drilling of production wells extends only to such operations conducted within a radius of 2000 ft. of any air or gas injection well or within a radius of 1000 ft. of any water injection well.

■ ■

Gasoline for Utilities

A complete revision, on the basis of the degree of essentiality, has been made in the list of industries to be accorded preferential treatment in the eastern gasoline shortage area according to a recent announcement by the Office of Defense Transportation. The revised industry list was certified to the ODT by the War Production Board. It replaces the original WPB list announced May 30.

Essential industries on the original list are recast, with some additions, into four groups: AA-1 (most critical); A-1 (very critical); A-2 (critical); and A-3 (important).

The list ("Schedule A") for preferential treatment in the furnishing of truck services for the basic maintenance, products and service of the specified industries includes public utility services, including the production, generation, transmission or distribution of electric energy, natural gas, manufactured gas, and water.

PEOPLE

The Cooper-Bessemer Corp. has just announced the appointment of **Carl H. Vaupel** to the position of assistant general manager, applicable to the company's two plants, one at its Mount Vernon, Ohio, headquarters and the other at Grove City, Pa.

Carl H. Vaupel

Graduating from the University of Illinois in 1924, Mr. Vaupel immediately became associated with the Diesel engine division of Fairbanks, Morse & Co., at Beloit, Wis., where he worked until 1937 in various capacities in the experimental, research and engineering departments. Since then and until joining Cooper-Bessemer he was connected with the Northern Pump Co. as eastern sales representative, and the Aircraft & Diesel Equipment Corp. as sales manager.

Since joining Cooper-Bessemer early in 1941, Mr. Vaupel has been devoting the major portion of his time to various managerial duties at the company's Grove City plant, where production is concentrated mainly on large Diesel engines for the navy, coast guard and maritime commission.

• •

Willard A. Luli, Cooper-Bessemer Corp. engineer for the past eight years, has been advanced to the position of factory production representative for the company's two plants at Mount Vernon, Ohio, and Grove City, Pa.

Mr. Luli is affiliated with the company's Washington, D. C., office, where he serves as Cooper-Bessemer representative on the WPB for the Large Diesel Engine Manufacturers' Planning and Scheduling Committee.

• •

Four top executives of the Pittsburgh Equitabel Meter Co., Pittsburgh, Pa., are now members of various branches of governmental service.

Col. **Willard F. Rockwell,** president of the company, is serving as director for production for the U. S. Maritime Commission in Washington, D. C. He has been in the army reserve for 20 years and with the Maritime Commission since April, 1942.

Private **W. F. Rockwell, Jr.,** vice president and comptroller, is now training at the Army Ordnance Officers' School, Aberdeen Proving Grounds, Aberdeen, Md.

Allen D. MacLean, vice president and chief engineer, is in Washington with the Maritime Commission as assistant director of production.

Major **A. E. Higgins,** vice president and sales manager, is the fourth Pittsburgh Equitable executive in service. He is on active duty with the U. S. Air Corps.

• •

The Securities and Exchange Commission has announced that **Ganson Purcell** has been re-elected chairman of the commission for the year ended June, 1944.

Mr. Purcell was appointed to the commission's staff as an attorney in August, 1934; he served in various positions on the staff, including that of director of the trading and exchange division from October, 1937, to June, 1941; became a member of SEC in June, 1941, and has served as chairman since January, 1942.

• •

Charles E. Kohlepp, vice president and controller, Wisconsin Public Service Corp., has been named director of the WPB Program Bureau, following the resignation of **John F. Fennelly.**

• •

War Production Board Chairman **Donald M. Nelson** has announced the appointment of two vice chairmen in WPB.

The appointments are those of **Clinton S. Golden** of Pittsburgh as vice chairman for manpower liaison and of **Joseph D. Keenan** of Chicago as vice chairman for labor production. They will report directly to Executive Vice Chairman **Charles E. Wilson.**

Mr. Golden, who has been granted leave from his post as assistant to President **Philip Murray** of the United Steelworkers of America (CIO), has served on the WPB labor policy committee and the War Manpower Commission's labor-management committee.

Mr. Keenan, on leave from his post as secretary of the Chicago Federation of Labor (AFL), has been a government official since June, 1940, when he joined the staff of the National Defense Advisory Council.

• •

T. H. Kerr, who on March 1 retired as director and vice president of the Ohio Fuel Gas Co., Columbus, has accepted a position as fuels consultant on the staff of the engineering experiment station of Ohio State University. In his new capacity, the nationally recognized authority on gas measurement will study the future fuel supply of Ohio and the related Appalachian areas.

Mr. Kerr continues as a member of the board of the Ohio Fuel Gas Co.

• •

H. N. Mallon, president, Dresser Manufacturing Co., has announced the election of **Norman Chandler** of Los Angeles as a member of the company's board of directors, and of **R. E. Reimer** of Bradford, Pa., as secretary and treasurer.

Mr. Chandler is president and general manager of the Los Angeles *Times* and secretary of the American Newspaper Publishers Association. He is also a director of Pacific Pump Works of Huntington Park, Calif., one of Dresser's subsidiaries.

Mr. Reimer has been with the company since January, 1929, and has been treasurer since May, 1932. His election to the additional office of secretary fills a vacancy caused by the death of **Merrill N. Davis.**

• •

George F. B. Owens, assistant vice president, Brooklyn Union Gas Co., Brooklyn, N. Y., recently obtained a leave of absence from his company and entered the naval re-

Actual Case History

Shown here is a view of the job that was completed in 1 hour and 55 minutes with a Greenlee hand operated Model 790 Pusher. The pipe size was 2" and distance of push 88 feet. Without aid of peep-holes, pipe was pushed directly into a small opening in basement of the building. Location of job—Chicago, Touhy Avenue at Central.

PUSHING TIME 1 HR. 55 MIN.

A TYPICAL PERFORMANCE RECORD FOR
GREENLEE HYDRAULIC PIPE PUSHERS

★ It is not unusual to complete a job in record time with a Greenlee Hydraulic Pipe Pusher, because there is no time wasted . . . no digging or back-filling of extensive trenches, no pavement cutting, no tunnelling, no repaving. Only a short trench is dug to accommodate pusher and pipe. No extra power equipment of any type is required, and one man can operate. Yes, time and manpower are saved with a Greenlee Pusher *—savings that often pay for the pusher on the first or second job.* Two models are available —Model 790, 20-Ton unit for 1¼" to 4" pipe; Model 795, 75-Ton unit for drainage ducts, concrete sewer, and other pipe beyond 4".

Write Today for Complete Information and Bulletin S-117

FAST • EASY
POWERFUL
PORTABLE

Greenlee TOOL CO.

1947 Columbia Ave. • Rockford, Illinois

ABOUT FOOD AND NUTRITION

help build a stronger nation!

And now with food rationing here...

SERVEL'S NEW RADIO PROGRAM TO HELP HOMEMAKERS

"Fashions in Rations"

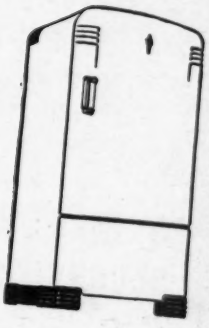
Every Saturday morning, Servel sends from coast to coast, over 68 CBS stations, a half-hour radio program dedicated to helping American homemakers with rationing. It's a new type of show that combines chuckles and laughter with timely, helpful, accurate information on food and nutrition.

- ★ **BILLIE BURKE** provides the fun and entertainment
- ★ **FLASH FOOD NEWS** straight from the government in Washington
- ★ **TIMELY FOOD TIPS** by Alice White, Servel's food expert
- ★ **LOCAL FOOD NEWS** direct from Utility Company home service consultants

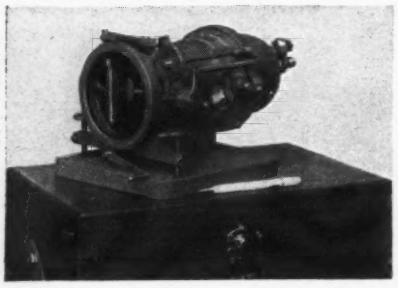
REFRIGERATORS for field and hospital are used to prepare and preserve life-saving serums.

SERVEL, Inc.

PEACETIME MAKER OF THE SERVEL GAS REFRIGERATOR



IDEAL FOR NEW WORKERS



Arcco-Anubis *Portable* Gas Balance

This compact, sturdy, precision-made balance has been the choice of major company engineers because of its up-to-the-minute design and simplicity of operation. Now, when newly trained help must be relied upon for work formerly done by experienced personnel, you'll save time and headaches by giving your workers accurate yet easy-to-operate instruments. Arcco-Anubis **Portable** Gas Balances have these important features:

- EASY TO OPERATE — No vacuum pump or other complicated accessories.
- ACCURATE TEMPERATURE INDICATOR — Thermometer is mounted INSIDE, completely submerged in the gas sample.
- EASY READING—Large front window makes both extremes of the scale easily visible.
- THOROUGHLY TESTED BEFORE SHIPMENT — Precision-built in the Arcco laboratory, and exhaustively tested.
- PROTECTED AGAINST CORROSION — All metal parts heavily plated.
- RIGID METAL BASE—Securely mounted. Metal base has central pilot hole which can be tapped with thread for any type of tripod.
- ADAPTED FOR USE AT LOW PRESSURES OR VACUUM UNDER ACTUAL LINE CONDITIONS.

Weighs Only
20 Pounds
Complete in Carrying Case

Send for Bulletin No. 101

AMERICAN RECORDING CHART CO.
3113 E. 11th St., Los Angeles, Calif.

serve as a lieutenant commander. Upon receiving his commission he reported immediately to San Francisco.

Mr. Owens studied at the U. S. Naval Academy at Annapolis, but in his senior year transferred to Massachusetts Institute of Technology, from which he received his B. S. degree in 1921 and his M. S. degree in 1922.

He joined the Brooklyn Union organization in 1930 as senior industrial engineer in the new business department and was subsequently appointed domestic sales manager and new business manager. In 1939 he was elected assistant vice president.

• •

Alfred Hirsh was elected vice president of the Laclede Gas Light Co. on May 27 by the board of directors. Mr. Hirsh was but 15 when he came to Laclede as an office boy. He continued his studies, however, in night school at St. Louis University. When he was a mere 18 he was made secretary to the president. He was elected assistant secretary of the company in 1925 and was named assistant secretary and treasurer in 1937. The following year he was advanced to the position of assistant to the president, and in 1941 was made general superintendent. Mr. Hirsh is a native of St. Louis and has an unbroken service record with the company.

Alfred Hirsh

• •

Officials of the Cooper-Bessemer Corp., Mt. Vernon, Ohio, have announced the appointment of **John M. Shimer** to the post of research engineer. In this position Mr. Shimer will investigate the adaptation of new materials, conservation of critical materials and the refinement of design where, in view of changing requirements, greater effectiveness will result.

He is a graduate of Lafayette College and was in charge of the Willson-Snyder Manufacturing Corp. for nine years, and for 12 years was vice president in charge of engineering with the Oil Well Supply Co.

• •

Carl Riggs, Fairmont, W. Va., has taken office as a member of the Public Service Commission of West Virginia for a six-year term. He was appointed by **Governor Neely** to replace **Hon. C. E. Nethken,** who has been a member of the public service commission since 1925. Mr. Riggs for many years was employed in the treasurer's office of the Consolidated Coal Co. at Fairmont.

• •

Horace P. Liversidge, president of the Philadelphia Electric Co., a subsidiary of the United Gas Improvement Co., announces that the board of directors, at a meeting held June 22, elected three new directors: **John A. Diemand,** president, Insurance Co. of North America; **Walter D. Fuller,** president, Curtis Publishing Co.; and **Edward Porter,** vice president in charge of finance and accounting, Philadelphia Electric Co. These new board members fill the vacancies caused by the death of **John E. Zimmerman** and by the resignation of **W. W. Bodine** and **Walter E. Long,** all of whom were executives and directors of the U. G. I.

• •

At a meeting of the directors of the Memphis Natural Gas Co., Memphis, Tenn., **H. L. Mann** was elected president of the company. He has been vice president and general manager of the Texas Gas Utilities Co. for the past 11 years. Memphis Natural is a subsidiary of the Commonwealth Gas Corp. of New York, which is also the parent company of Texas Gas Utilities.

Mr. Mann will take over his new office in Memphis but will continue in active operation of the Texas Gas Utilities from Del Rio.

• •

H. F. Voertman has been appointed assistant to the vice president of the Laclede Gas Light Co., St. Louis, according to an announcement by the new vice president, **Alfred Hirsh.**

Mr. Voertman joined the Laclede organization in 1923 as clerk in the auditing department. In recent years he has been in charge of the telephone system of customer contacts for the company.

• •

Promotion of three officials is announced by **Halfdan Lee,** president of Eastern Gas and Fuel Associates.

W. H. Earle, vice president, Philadelphia Coke Co., Philadelphia, has been elected president of that company, and **Hugh MacArthur,** formerly vice president of the Connecticut Coke Co., New Haven, is now president of his company. Both these companies are subsidiaries of Eastern Gas and Fuel Associates.

H. B. Baird, vice president in charge of sales for the Koppers coal division of Eastern Gas and Fuel, has been elected a trustee of the parent company. He will continue in his present position.

Mr. Earle and Mr. MacArthur succeed **Angus MacArthur,** deceased, who was president of both companies.

• •

Clark Bros., Inc., of Olean, N. Y., have recently announced the appointment of **John L. York** as advertising manager.

Mr. York has had many years of experience in the advertising field. He studied art at the Art Institute of Chicago and worked with one of the leading illustrators of the country for a number of years, acquiring a considerable knowledge of advertising, layout, illustration and copy. He has also served with the Waltham Watch Co. and the Watson Co. of Attleboro, Mass.

• •

D. H. Foote, vice president and secretary of Pacific Gas & Electric Co., retired on June 1 after more than 40 years of service. He will remain a member of the board. **R. Kindig** is the new secretary of P. G. & E.

• •

Alice Livermore, home service director for United Gas Corp., Houston, Texas, has resigned her position to join the WAVES. She has entered the service as a midshipman and, upon completing the course of basic training at Smith College, Northampton, Mass., will be commissioned an ensign and assigned to active duty.

The Southwest home service director has been with the United Gas Corp. for the past four years, prior to which she was associated with the Memphis Power & Light Co. and Tide Water Power Co., Wilmington, N. C.

• •

The resignation of **Paul M. Raigorodsky,** assistant director of the natural gas and natural gasoline division, effective July 1, was accepted by Petroleum Administrator for War **Harold L. Ickes** on June 19. Mr. Raigorodsky will return to the oil business activities in which he engaged before joining the PAW in September, 1941. He has been on leave of absence as vice president and general manager of Petroleum Engineering, Inc., and the Glen Rose Gasoline Co., both in Tulsa, Okla., and Houston, Texas.

• •

James E. Pew has been appointed assistant director of the Division of Natural Gas and Gasoline in the Petroleum Administra-

THAT NIGHT A MIRACLE HAPPENED

EXCERPT from a letter from Africa . . .

"It is night in a field dressing station. They bring in a soldier who's gone into shock. He looks like he is dead. And they start plasma flowing into him and back he comes. I tell you there are a lot of fellows coming back from Africa who wouldn't have returned if plasma wasn't on hand. That plasma is miraculous."

NOT ONCE but many times by the hundreds, before the tired eyes of doctors and nurses, blood plasma has performed its miracles in battle zones on land and sea.

Look at the record. In this most merciless war of all time, modern medicine has cut the death rate of wounded men from the 1918 figure of 7% to less than 1% today.

Beyond price. In this most expensive war of all times, the most priceless medicament is plasma—dried blood. Its sole supply is from voluntary blood donors.

The need is great. Northern California quota is 5000 Blood donors a week for the Red Cross Procurement Centers in San Francisco and Oakland.

What to do. Arrange for an individual blood donation at your nearest Red Cross Chapter or come as a group, as many clubs, churches, labor unions and fraternal organizations have done.

Why you MUST come to San Francisco or Oakland! Blood procurement centers must be located near dried blood laboratories. There are only nine such laboratories in the United States. California has two of these—one in Berkeley—one in Los Angeles.

Cut out and mail in the coupon appearing below. You will get a prompt reply. If you live some distance away from the Bay area, you can use the coupon, make arrangements through your local Red Cross, or phone for an appointment. Northern California must not fail in its weekly quota of 5000 Blood Donors.

RED CROSS BLOOD DONOR CENTER
2415 Jones St., San Francisco or 521-29th St., Oakland

I HEREBY PLEDGE MYSELF AS A BLOOD DONOR

_____
Last Name *First Name*

_____
Address

_____
Telephone (Daytime Phone Preferred)

Enter date and time you prefer to come:

_____
Date *Time*

You will receive a card confirming appointment.

P·G·and E·

PACIFIC GAS AND ELECTRIC COMPANY

Cleared for ACTION

Gas Industry of the West Meets War Emergency With Fast Teamwork

Streamlining its activities in keeping with the fast pace of today, the P. C. G. A. has now substituted frequent, compact invitational committee meetings for its regular annual Convention.

LICKING WARTIME PROBLEMS

Among the subjects on which experience and ideas already have been exchanged are:

Manpower • Priorities
Dehydration of Vegetables
Nutrition (Home Service)
Utilization • Accounting
Dealer Cooperation
Production (including a report to the OCD on dim-out cooperation.)

Such meetings can be called on short notice, to discuss any problem that may arise.

THE PACIFIC COAST GAS ASSOCIATION

SERVING THE WEST - IN WAR AND PEACE

GAS FUEL

tion for War, according to announcement by Deputy Administrator **Ralph K. Davies.** Mr. Pew succeeds **Paul M. Raigorodsky,** who resigned on June 30. Succeeding Mr. Pew as chief of the Natural Gasoline Section of the division is **Charles E. Webber.**

After many years in the natural gas and natural gasoline industry, the last 16 of which he spent in the employ of the Virginian Gasoline & Oil Co. and its subsidiary companies, Mr. Pew was called in to the PAW in January, 1942, as a member of the production division. He was later made chief of the natural gasoline section of the Natural Gas and Natural Gasoline Division.

Mr. Webber was employed by the Humble Oil & Refining Co. before joining PAW.

Obituaries

Hans Vittinghoff

Hans Vittinghoff, a consulting engineer for the Stone & Webster Engineering Corp., New York, died on May 26 at the age of 59 after an illness of two months. He had been associated with Stone & Webster since 1909.

Born in Germany, Mr. Vittinghoff came to this country when he was 12 years old and graduated from the Stevens Institute of Technology in 1907. He was an active member of the American Gas Association and had served on various Technical Section committees. He also held membership in the American Institute of Chemical Engineers and the American Society of Mechanical Engineers.

■ ■

William G. Rudd

William G. Rudd, vice president, Peoples Gas Light & Coke Co., Chicago, died suddenly of a heart attack while attending a business conference in the Atlantic Hotel on May 26. He was 55.

Born in Philadelphia, Mr. Rudd started with the Chicago company as a laborer 38 years ago and soon was promoted to the operating end of the business. It was in 1927 that he was elected vice president.

■ ■

J. C. Trees

An oil industry partnership of nearly 50 years was broken with the sudden death of J. C. Trees on May 19. He was a director of Orange State Oil Co., and one of the founders of Arkansas Natural Gas Co., predecessor of Arkansas Natural Gas Corp.

In 1905 Mr. Trees and his partner, M. L. Benedum, discovered the Caddo field in Louisiana which proved to be the biggest field in history up to that time.

■ ■

Paul C. Coffin

Paul C. Coffin, vice president in charge of operations, Shamrock Oil & Gas Corp., died recently after suffering a heart attack at his home in Amarillo, Texas. Before joining the Shamrock company in 1939 he was assistant superintendent of gasoline plants for Lone Star Gas Co., working with the late J. R. Jarvis.

■ ■

Eugene M. Kerr

Major Eugene M. Kerr, well-known Oklahoma political and business leader, and a special representative of the Oklahoma Natural Gas Co., died at his home in Muskogee on June 16. He first became associated with the gas company in 1928 and retained his connection until his death.

Cincinnati Utilities Sponsor Baseball Broadcasts

The Cincinnati Gas & Electric Co. and sister companies of the Cincinnati group of the Columbia System have established another advertising first in sponsoring the broadcasts of the games played by the Cincinnati Reds of the National League. Previously, major league ball games have been sponsored almost entirely by food and oil companies, and the Cincinnati system becomes the first public utility outfit to take over major league game broadcasts.

Commercials are divided between gas, electricity and street railway and bus transportation. The gas commercials are largely concerned with appliance care suggestions, low cost of service themes, and conservation advice.

In the photo, Dick Bray, left, and Roger Baker, famed play-by-play baseball broadcast experts of WSAI, Cincinnati, were forced to wear overcoats as they broadcast the opening day game of the National League Cincinnati Reds.

■ ■

Model Garden Attracts Hundreds to Cookery Class

A diminutive victory garden, flourishing in a show window of the district offices of the Oklahoma Natural Gas Co. at Oklahoma City, attracted hundreds to a seven-week fruit and vegetable canning course sponsored by the company.

Commencing May 4, the course was conducted by Pauline Sherwood, director of the home demonstration department of the company for the Oklahoma City district. Demonstrations included pressure cooker or hot water batch method for canning non-acid vegetables, oven canning, open kettle methods and drying of certain fruits and vegetables. Top-stove driers, or simple driers which fit into the oven and are made of light wood and wire, were used to show how certain foods may be preserved by dehydration.

■ ■

Gas Company Sold

The Arkansas-Louisiana Gas Co., Shreveport, received permission from the Arkansas Utilities Commission on June 9 to purchase the Consumers Gas Co., at Hot Springs, Ark., for $800,000. The purchasing company is said to have contracted to take over Consumers' $424,000 outstanding bonds and $300,000 common stock from the Central Arkansas Public Service Co., a holding company, and planned to dissolve the corporate existence of the Consumers Gas Co.

COMPUTING THE GAS FLOW OF ORIFICES IS

FAST • ACCURATE • EASY

with the new W. B. P. Gas Flow Orifice Calculator

- **Save Up to One-half Usual Time**
- **Eliminate All Possibility of Error**
- **No Calculations . . . No References**
- **Set the Scales . . . Read the Answer**

INVALUABLE to engineers and shop men alike . . . all utility industrial gas salesmen, industrial service engineers, domestic appliance service departments, gas appliance and equipment manufacturers, and all others who have occasion to check or determine orifice sizes for natural, manufactured, or liquefied petroleum gases.

For fast and accurate checking of all factors relative to orifice sizing . . . B. t. u.'s per hour, cu. ft. per hour, gas pressures, drill sizes, etc. Calibrated for orifice coefficients from .6 to 1; gas pressures from .5 to 15 ins. of water; specific gravities from .3 to 2.0; and drill sizes from No. 75 to ½ in.

No other calculator is available to help you short-cut these important and complicated calculations. Simple to operate, it eliminates the possibilities of error inherent in pencil-and-paper computations.

Priced for quantity purchase to enable you to obtain a sufficient number for everyone in your organization concerned with orifice sizing. If for any reason you are not satisfied, you are privileged to return the orifice calculator within 10 days of purchase.

TIME saving is one of the big advantages in using the Gas Flow Orifice Calculator. In a test calculation, the computation was made first by the standard paper-and-pencil method . . . then the same computation was made with the Calculator in less than half the original time. Save man hours with the W. B. P. Gas Flow Orifice Calculator.

How Calculator Operates

To Find Drill Size

1. Rotate movable dial until specific gravity coincides with gas pressure.
2. Rotate movable segment until proper orifice coefficient coincides with desired gas quantity (cu. ft. per hr.). If orifice coefficient is not known, use 0.8.
3. Read drill size on movable dial opposite the arrow (0.8) on the orifice coefficient scale of movable segment.

To Find Cubic Feet Per Hour From B. t. u. Per Hour

1. Rotate movable segment until heating value of gas (B. t. u. per cu. ft.) coincides with gas quantity in thousands of B. t. u. per hour on quantity scale.
2. Read gas quantity in cu. ft. per hour against 1.0 (orifice coefficient scale).

To Find Quantity (Cu. ft. Per Hour) for Given Drill Size

1. Rotate movable dial until specific gravity coincides with gas pressure.
2. Rotate movable segment until arrow (0.8) on the orifice coefficient scale is opposite appropriate drill size.
3. Read quantity (cu. ft. per hr.) against appropriate orifice coefficient. If orifice coefficient is not known, use 0.8.

To Find B. t. u. Per Hour Given Cubic Feet Per Hour

1. Rotate movable segment until 1.0 on the orifice coefficient scale coincides with the gas quantity in cu. ft. per hour.
2. Read corresponding B. t. u. per hour in thousands against appropriate heating value (B. t. u. per cu. ft.).

We pay postage on orders accompanied by remittance. Add 3% sales tax on California orders; 10% excise tax on Canadian orders.

ORDER TODAY

GAS
1709 West Eighth Street
Los Angeles, Calif.

SPECIAL OFFER
25% Discount on All Orders of 25 or More

$1.00 Each

Gentlemen: Please send me.....W. B. P. Gas Flow Orifice Calculators, for which I am enclosing my check (or money order) for $.....

NAME.....

COMPANY.....

ADDRESS.....

PRODUCTS

Sponge Rubber Gasket

B. F. Goodrich Co., Akron, Ohio.

Model: Sponge Rubber Gasket.

Application: For use at present in products of war such as tanks and airplanes, as a sealing member in severe service. After the war it will apply to refrigeration, automobiles, etc.

Description: Gasket is covered with smooth coating of natural or Ameripol synthetic rubber by extrusion process. It has a much lower permanent set than tubular type heretofore used on refrigerators and automobiles, but is as soft and compresses as well as older type. In new process, sponge rubber filler is molded in slab form, slit into strips and fed through special extruding machine to obtain smooth covering which varies in thickness according to customer's specifications.

Available in round, square and rectangular shapes. At present it is most practical in dimensions not smaller than ¼-in. nor larger than 1½-in. Maximum production length is 12 ft., but product can be spliced to any desired length with connecting points barely detectable. Can also be produced, where necessary, with a lip for attachment.

■ ■

Sweeping Compound

Lacey-Webber Co., Kalamazoo, Mich.

Model: Fireproof oil-absorbent sweeping compound, Fibre-Tex.

Application: A floor cleaning compound to eliminate the danger of fire. Its use is indicated in industrial plants generally, as well as garages, service stations, oil plants, airports or wherever machinery is serviced or oil or grease may collect or be spilled upon floors.

Description: The product is said not to burn even when the flame of a blow torch is played directly upon it, nor as the result of spontaneous combustion. This compound is highly absorbent of oils and grease and has an active cleaning effect upon floors on which it is consistently applied. Grease and oil caked dirt are said to be removed; safety stripes and other floor markings are made plainer, and in general plant housekeeping is greatly improved.

Air Valve

Taylor Instrument Companies, Rochester, N. Y.

Model: Booster Relay Air Valve.

Application: For better process control through faster operation of large diaphragm valve motors, or of valves located at unusually long distances from controlling instruments.

Description: This is an auxiliary device which provides accelerated valve action to eliminate the effect of lag in large diaphragm motors and/or in long air lines between controlling instruments and diaphragm motors. Valve will inflate or deflate the largest Taylor valve motor (diaphragm of 144 sq. in.) from five to seven times faster than by controller alone. Installed in air line adjacent to diaphragm motor, it actuates diaphragm valve by means of independent air supply of 25 to 250 psi. which is applied or relieved through large ports. This action is in direct proportion to controller output; ratio 1 to 1.

Process stability is increased by causing valve action to closely follow controlling instrument output changes. Required set points can be maintained on applications where time lags and capacities are small (rapid process reaction rates). The booster relay air valve is ruggedly and durably constructed, and internal assembly is claimed to be corrosion-proof.

■ ■

Gas Water Heaters

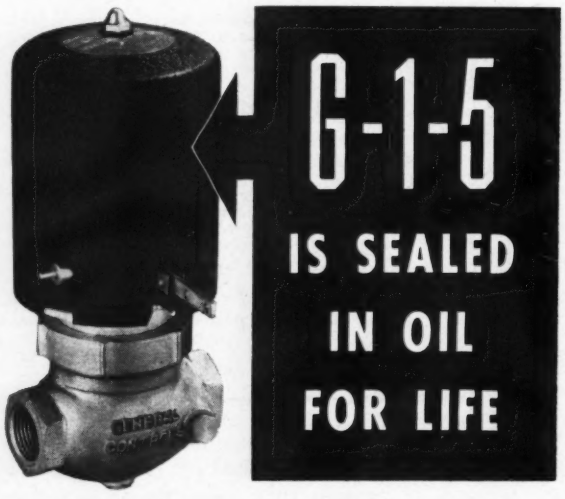
Bastian-Morley Co., Inc., La Porte, Ind.

Models: The Crane Champion (automatic) and Marvelous Gas Water Heaters and the Crane Royal Booster and Storage Gas Water Heaters.

Application: For use with natural, manufactured or mixed gases, these heaters are distributed nationally by all branches of the company and are especially constructed for use with liquefied petroleum gases.

Description: The Crane Champion and Marvelous gas water heaters are made in 20, 30 and 40 gal. sizes and are designed for efficient, economical and dependable operation in domestic and small commercial and industrial installations. The Crane Royal Booster and Storage gas water heaters are built in 50, 55, 75 and 85 gal. sizes and recoveries up to 210 gal. per hour. With input ratings up to 150,000 Btu., these larger heaters are ideal for army camps, navy stations, air bases, mess halls, hospitals, war industries and other big installations.

Whenever possible, critical metals have been replaced by non-critical materials in



General Controls' Hydramotor Gas Valve G-1-5 is sealed in oil for life thus eliminating cost of maintenance-oiling. G-1-5 has ample damper power for louvres or secondary air doors. This gas valve has manual opening device, with automatic recycling feature for use in case of current failure. Indespensible to users of mixed, manufactured or natural gases. Available ¾" to 2½" I.P.S., low or line voltage all frequencies. Write for Catalog 52 containing complete specifications.

GENERAL CONTROLS

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BRANCHES: Boston, New York, Philadelphia, Cleveland, Detroit, Denver, Chicago, Dallas and San Francisco

the construction of these heaters. Cast iron has been used to a great extent to replace brass; steel has replaced copper; and a hard, fireproof board has been substituted for the pre-war steel outer casing.

■ ■

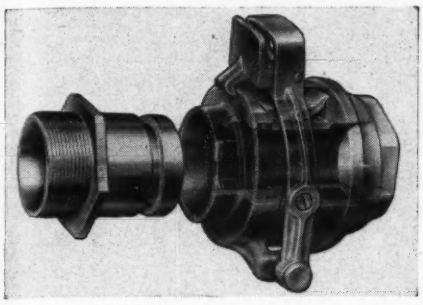
Quick Disconnect Couplings

Wiggins Oil Tool Co., Inc., 3424 East Olympic Blvd., Los Angeles.

Model: Quick Disconnect Couplings.

Application: Used in handling of fluids, as well as compressed air and vacuum, affording instantaneous release.

Description: These couplings, industrial and marine, come in sizes from 2-in. to 10-in., and are disengaged by releasing a latch and



throwing a lever. Connection is made by placing two ends of coupling together and raising lever. Made in accordance with federal specifications; larger sizes are individually tested for pressure and porosity.

Sizes ¾-in. to 2-in. are die cast from zamak; larger sizes are machined from brass or aluminum. Special line of couplings, including single and double self-sealing models as well as open type, are manufactured primarily for aircraft industry, but also find special marine and industrial applications.

■ ■

Arc Welders

Harnischfeger Corp., Milwaukee, Wis.

Model: Industrial A. C. arc welders.

Application: Engineered and built for industrial service, these machines are being made in seven heavy-duty and four intermittent duty models with a range of capacities for handling production welding under continuous operation.

Description: This new line of arc welders features the recently adopted "WSR" (welding service range) ratings which show the actual minimum to maximum output of usable welding current.

Specific "WSR" ratings of heavy-duty models are: 50 to 270 amps., 60 to 375, 90 to 500, 100 to 625, 125 to 750, 150 to 900, and 200 to 1200; of intermittent duty models: 20 to 185 amps., 20 to 235, 20 to 285, and 20 to 335. Setting and control of current throughout complete welding service range involves but one adjustment.

■ ■

Gas Burners

The Burdett Manufacturing Co., 19 North Loomis St., Chicago.

Model: "Infra-red Principle" gas burner.

Application: For use in soft metal melting, varnish cooking, paint drying, annealing, food processing and baking, industrial high pressure steam boilers, heating systems and meat curing.

Description: This type of burner is a thermal radiator whose temperature is maintained by the combustion of an air-gas mixture on the radiating surface itself. At its usual

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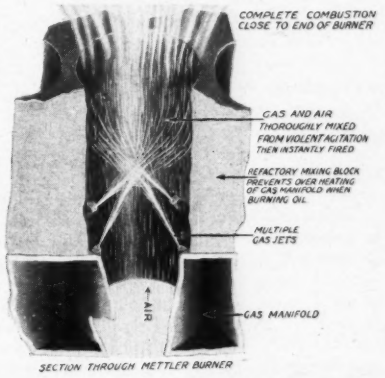
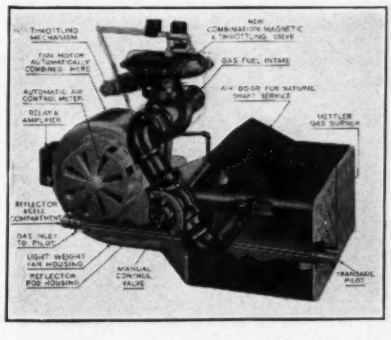
Here is how the Mettler unique gas burner design mixes gas and air.

Here it is as a complete assembled automatic (fan-air) gas burner system.


COMPLETE COMBUSTION CLOSE TO END OF BURNER
GAS AND AIR THOROUGHLY MIXED FROM VIOLENT AGITATION THEN INSTANTLY FIRED
REFRACTORY MIXING BLOCK PREVENTS OVER HEATING OF GAS MANIFOLD WHEN BURNING OIL
MULTIPLE GAS JETS
AIR
GAS MANIFOLD

SECTION THROUGH METTLER BURNER



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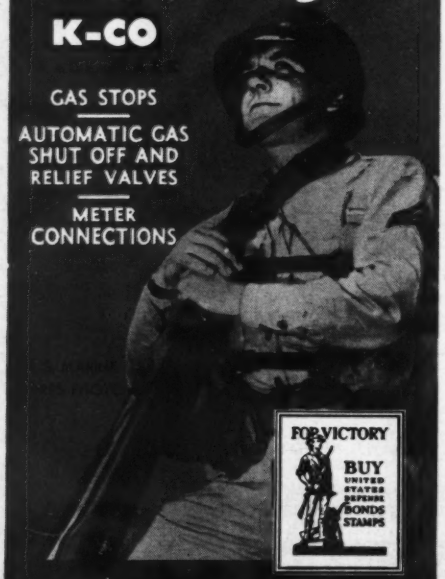
GAS STOPS
AUTOMATIC GAS SHUT OFF AND RELIEF VALVES
METER CONNECTIONS



KITSON COMPANY
1500 WALNUT ST., PHILADELPHIA, PA.
Subsidiary of the Welsbach Engineering and Management Corporation

operating temperature of 2300° F., it acts very nearly like an ideal black body radiator. About 99% of its total radiation is in the form of "infra-red" rays. Heat rays are radiated at a 45° angle from the burner, providing an even temperature across the entire expanse of radiation.

These burners burn any commercially available gas from manufactured to hydrocarbon gas.

Catalogs

• Mayer Manufacturing Corp., Brooklyn, N. Y., has published a bulletin to introduce its new line of "Aqua-Restor" paint spray booths and dust collection systems. Developed to meet high-speed industrial spraying requirements, the water-wash spray booths are claimed to offer maximum spray painting production with great labor and fire protection guards. The water curtains are continuous and completely controlled, and do not shower the worker or the product. Absence of spray nozzles and moving parts assures minimum production losses due to servicing.

The water-wash dust collectors are said to offer almost 100% reclamation and reuse possibilities of valuable dusts and grindings, and return of washed and cleaned air to plant saves fuel. Controlled air and water pressures insure uniform static levels.

• Bastian-Morley Co., Inc., LaPorte, Ind., has prepared an attractive 24-page booklet entitled "10 Ways to Add Life to Your Water Heater." The two-fold purpose of the booklet is to offer suggestions to all water heater owners for the preservation of their equipment, in the interest of conserving metals, labor, fuel and the nation's health; and to assist the registered Crane gas water heater dealer to obtain repair and service work in place of normal new-installation work. The "10 ways" are explained in separate chapters under the following headings: (1) Check your hot water faucets; (2) Insulate hot water pipes; (3) Insulate bare hot water tanks; (4) Check your water heater location; (5) Investigate flue connections; (6) Clean water heater burner; (7) Check thermostat setting; (8) Remove sediment from tank; (9) Wax exterior of water heater; (10) Draw hot water into receptacles.

• Manheim Mfg. & Belting Co., Manheim, Pa., announces publication of a new catalog on "Veelos Adjustable V-Belting." The catalog is eight pages long and is copiously illustrated. It is in effect an instruction manual, as well as a comprehensive catalog, showing in detail the sequence of operations required to take the belt apart at any point with a screwdriver. It also shows the steps necessary to recouple the belt without any tools at all. In addition, a number of typical applications are illustrated. Complete engineering data and a sample calculation for determining the necessary size of a drive are included. The V-belt length table gives the proper length of belt to use according to the standard formula.

• Wheelco Instrument Co., Harrison and Peoria Sts., Chicago, has published a condensed catalog, Z 6000, describing the company's stock of measuring and controlling instruments. A more complete Wheelco Catalog will be sent to anyone interested in the firms complete line and individual bulletins will be supplied to provide detailed information on specific instruments.

Porcelain Enameled Immersion-Type Heaters

BECAUSE of the scarcity of stainless steel and other corrosion-resistant alloys, the Quartermaster Corps of the Army has been in search of a suitable substitute material from which to make the heating "coil" for an immersion-type water heater in which the heat is supplied by a flame from a gasoline torch playing upon the inside of a tube immersed in the liquid. To assist them in selecting an enamel for this use, the Quartermaster Corps forwarded to the bureau six sets of specimens having different types of enameled coatings with the request for appropriate tests and a report upon the relative suitability of the respective enamels.

These specimens were tested for resistance to thermal shock, for resistance to boiling tap water and to boiling 1% trisodium phosphate, for adherence of the enamel to the metal, and for acid resistance of the enamel. The last-named test was made with 10% citric acid at room temperature, first for a 15-min. period and then for a 7-hr. period. As a result of these tests, an enamel was selected which was successfully quenched from a temperature of 1000° F. in cold tap water without failure, which showed little or no attack in the test with boiling tap water and boiling trisodium phosphate solution, and having good acid resistance and adhesiveness.

■ ■

Georgia Gas Rates Made Uniform by Order

The Georgia Public Service Commission recently ordered a revision of the natural gas rates of the Atlanta Gas Light Co. for Atlanta and 12 other cities in Georgia. This revision was for the purpose of eliminating the service charge and of bringing about uniformity in the general rate schedules in the natural gas territory served by the company; it results in a reduction in revenue for the company of $168,000 per annum.

The new schedule provides for a uniform minimum bill of 85¢ per month to include 300 cu. ft. of gas, the balance of the schedule to follow closely that which has been in effect in the city of Atlanta.

This adjustment was the result of the conference method which the Georgia commission has used effectively over the past several years and marks the culmination of an inquiry begun at the time the several properties in Georgia, under common ownership, were merged with and into the Atlanta Gas Light Co. The new rates became effective on May 1, 1943.

■ ■

Two More States Join Carbon Black Producers

According to a recent report of the Carbon Black Manufacturers Industry Advisory Committee, California and New Mexico have been added to the list of states producing carbon black.

The initial production of several new plants and the excellent cooperation of the industry during the past 12 months have resulted in greatly increased production of the furnace type carbon black, the report stated.

■ ■

Service Resumed

Gas service has been resumed in Madill and Tishomingo, Okla., after 11 gasless days. Pipelines of the Oklahoma Natural Gas Co. were washed out by the roaring Wolf Creek resulting from cloudbursts that swept across five southern Oklahoma counties sending flash floods down several streams.

JM

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TRANSITE FLUE PIPE

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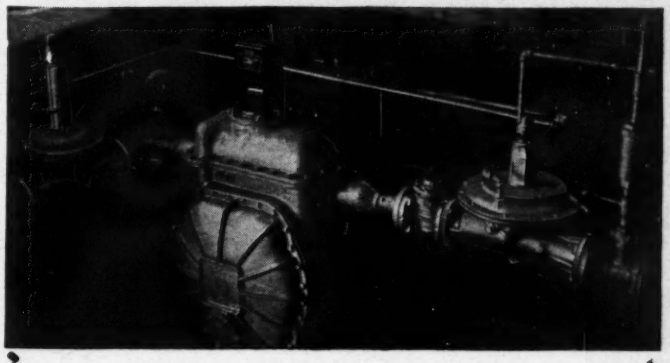
For venting gas-burning appliances



(Photograph of actual plant installation)

In Industry, as well as in every other phase of America's struggle, to keep America safe for Americans, gas is playing a leading role. Regardless of whether it is an unusual requirement of accurate control in heat treating or some other industrial need, REYNOLDS has the answer to Gas Control Requirements.

REYNOLDS offers greater Capacity—Increased Range—Quicker Response—all features of REYNOLDS Gas Regulators for Industrial Control. They assure smooth, constant outlet pressure and volume. Manufactured in single or double valve construction, REYNOLDS Industrial Regulators are proved by performance in factory tests and on installations throughout the world.

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Winners of PCGA "Idea" Contest Announced

RESULTS of the Pacific Coast Gas Association's "Idea" contests have been announced and prizes totaling $1037.50 distributed to the winners. Employees from eight western gas utilities contributed 409 ideas in the three-way contest. Entries in the women's contest totaled 155; in the sales division, 114; in the service category, 140.

The contest was originally promoted by Gladys Warren, chairman of the women's committee, under the caption, "Have You Ever Seen a Dream Cooking?" and it was later adapted by W. M. Jacobs, chairman of the Post-war Appliance Committee, to include sales and service personnel of member companies.

A list of the main prize winners in each section is as follows:

Women's Committee Contest

First—$100 war bond, Phyllis Hopson, Southern California Gas Co., Los Angeles.

Second—$75 war bond, Helen A. Lenning, Southern California Gas Co., Porterville, Calif.

Third—$50 war bond, Mrs. Annabelle Vaughn, Portland Gas & Coke Co., Portland, Ore.

Fourth—$25 war bond, Jane Stille and Ellen Scoular, Southern Counties Gas Co., Santa Monica, Calif.

Sales and Home Service Contest

First—$100 war bond, A. R. Maughan, Pacific Gas & Electric Co., Modesto, Calif.

Second—$75 war bond, H. M. Wilcox, Southern Counties Gas Co., Ventura, Calif.

Third—$50 war bond, L. O. Howell, Southern California Gas Co., Visalia, Calif.

Fourth—$25 war bond, Dorothy Schwarz, Southern California Gas Co., Los Angeles.

Service and Installation Contest

First—$100 war bond, B. H. Scott, Pacific Gas & Electric Co., Lodi, Calif.

Second—$75 war bond, A. L. McAlpine, Southern California Gas Co., Hanford, Calif.

Third—$50 war bond, George Rusher, Southern California Gas Co., Los Angeles.

Fourth—$25 war bond, John G. Nordin, Southern California Gas Co., Los Angeles.

Judges for the contest, all members of the Post-war Appliance Committee, included: W. M. Jacobs, Southern California Gas Co., chairman; F. U. Naylor, Pacific Gas & Electric Co.; Klaas A. Eisinga, Continental Water Heater Co.; W. M. Couzens, Gaffers & Sattler; J. E. O'Hagen, Grayson Controls, Ltd.; and C. A. Miller, Servel, Inc. Carl Swigart, PCGA, acted as secretary for the judges, removing all identification from entries before giving them to the judges.

C. A. Swigart, PCGA, and Jessie McQueen, home service counselor, AGA, are shown drawing "grab bag" prize winners in PCGA women's committee post-war appliance contest.

United Gas System Creates New Beaumont District

Because of increasing demands promoted by war production plants in the Beaumont, Texas, area for natural gas service, the United Gas System, Shreveport, La., on April 26 formed a Beaumont district with P. G. Mathews as district manager.

Mr. Mathews is a graduate of Southern Methodist University, having taken his degree in business administration. He started with the United System as a timekeeper and dispatcher in the Shreveport district, and in 1930 was transferred to Beaumont as assistant chief dispatcher. He was made foreman of the Nederland section in 1932 and has remained in that position until his new appointment.

J. A. Benson is chief clerk of the new district and O. D. Jackson, acting district engineer in the southwest Louisiana district since September, 1942, was promoted to chief engineer in the Beaumont district. L. A. McElwee, instrument man in the Jackson district since 1936, is to be measurement superintendent.

■ ■

Williams Bros. Corp. Awarded Army-Navy "E"

The honor of being the first pipeline contracting firm to be awarded the Army-Navy "E" award was merited by Williams Bros. Corp., Tulsa.

The award was transmitted by James Forrestal, under secretary of the navy. His letter, in part, read: "The Army and Navy are conferring upon Williams Bros. Corp., now engaged in fuel pipeline installation, the Army-Navy production award for outstanding performance in war-time construction."

■ ■

Detroit Representative

Cochran Corporation, Philadelphia, Pa., announces the appointment of the Metrol Co. as flow meter representative for the Detroit territory. Metrol Co. is located at 2970 West Grand Blvd., Detroit, and will also handle Hays combustion control and instruments, Reliance gage columns and Wilson tube cleaners.

The Metrol firm is headed by Robert A. Wright, assisted by Warren W. Wassall.

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We look forward to the day when again we can make and sell to you Klixon silent gas controls. But in the meantime we must wait and work for just one thing . . . Victory. Until it comes, all of our production will be directed to meet the urgent needs of war-time America.

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